

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

GLEANINGS

IN BEE CULTURE

CONTENTS

Stray Straws, by Dr. Miller	7
Pickings, by Stenog	9
Conversations with Doolittle	9
Editorials	II
Pure-food Bill	11
Ants and Pear-blight	11
Butterflies and Alfalfa	11
Alfalfa Cut Early or Late	12
An Expert Deceived or Misled	12
General Correspondence	14
Bulk Comb Honey, by H. H. Hyde	14
Winter Repositories, by Doolittle	15
Alfalfa for Horses, by L. B. Bell	19
Section-box Nuclei, by Swarthmore	18
Watson's Ranch, by E. R. Root	21
Heads of Grain	24
Pear-juice for Winter Feed	24
Winter Hives and How Packed	24
Bee Paralysis, etc.	25
Temperance Progress	26
By A. I. Root	
Our Homes	26
By A. I. Root	

THE A. I.
MEDINA



ROOT CO.
OHIO

Western Edition

ENTERED AT THE POSTOFFICE AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

Ready for Your Orders!

We have in stock ready
for immediate delivery a

Carload of Root's Supplies

such as Dovetailed and Danzen-
baker Hives, Cowan Extrac-
tors, Sections, etc., etc. If you
want Root's goods be sure to
specify it in making your order
or inquiry. We also handle
local-made supplies. Let
us have your specifications
early so we may not disap-
point you when you need the
supplies.

~~~~~  
Smith's Cash Store,

(Incorporated)

San Francisco, Calif.

# Colorado Bee-keepers!

Get our prices before purchasing else-  
where. We are selling first-class make  
of goods at lower prices than the  
cheaper goods can be purchased for.  
If requiring Hives, Sections, Honey-  
extractors, Shipping-cases, Knives,  
Bee Smokers and Veils, Comb Founda-  
tion, or any thing else in the line of

## BEE-KEEPERS' SUPPLIES

you should remember that

The L. A. Watkins Mdse. Co.

Denver, Colorado,

are headquarters for the State, and  
furnish local associations who can use  
as much as a carload at carload prices  
direct from the factory, or smaller lots  
from our well-furnished warerooms in  
Denver, at prices that defy competi-  
tion for equal quality of goods. We  
are agents for The A. I. Root Com-  
pany's Goods for Colorado, and want  
to hear from bee-keepers in need of  
supplies. We buy honey and wax.

**Let Us Hear from You.**

# BARGAINS



All goods advertised last month are  
sold. This month we have a few sec-  
ond-hand hives to sell. They have nev-  
er been used, are all set up and painted  
white. For prices and particulars  
write us. In a few days now we will  
have a new car of the very latest bee-  
hives, sections, smokers, bee-veils,  
foundation, extractors, and every thing  
for bee-keepers.

Give the DANZENBAKER HIVE a  
trial for comb honey. You will be  
pleased. Send for catalog.

UP HOLLYWOOD BL. 100  
PARSONS  
CARL F. BUCK,  
Aug 11 1900

Augusta, Kansas.  
Butler County.



## Announcement!

We desire to call the attention of all  
bee-keepers in Washington, British  
Columbia, and adjacent territory, that  
we're now the Northwestern agents for

THE A. I. ROOT COMPANY,

and are prepared to furnish from stock  
here, and at other Washington points,  
any thing required by bee-keepers.  
Send your specifications early. If we  
do not have the goods wanted this will  
enable us to get them in our next car-  
load. Catalogs free.

LILLY, BOGARDUS & CO.,  
Seattle, Washington.

✿ ✿  
Northern-grown Seeds, Trees and Plants,  
Poultry and Bee Supplies, Spray Pumps,  
Fertilizers and Garden-tools.

## Honey Column.

### GRADING-RULES.

**FANCY.**—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

**A No. 1.**—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

**No. 1.**—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

**No. 2.**—Three-fourths of the total surface must be filled and sealed.

**No. 3.**—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

### CITY MARKETS.

**NEW YORK.**—Not much demand for comb honey. Receipts are not large, but more than is wanted now. We quote fancy, 15¢@15½; No. 1, 13¢@14; buckwheat, 12¢@13½. Beeswax, 28¢@29, and good demand.

FRANCIS H. LEGGETT & Co.,  
Franklin and Varick Sts., New York.

**KANSAS CITY.**—Market steady at quotations. We quote fancy white, per case of 24 sections, \$3.50; No. 1, \$3.40; No. 2 and amber, \$3.25. Extracted white, per lb., 7¢@7½; amber, 6¢@6½. Beeswax, 27¢@30.

C. C. CLEMONS & Co.,  
Dec. 20. 306 Grand Ave., Kansas City, Mo.

**PHILADELPHIA.**—Comb honey selling very freely, with light arrivals. We quote fancy white, 16¢@17; No. 1, 15¢@16; No. 2, 14¢. Extracted, fancy white, 8¢; amber, 6¢@7. Beeswax, firm at 30. We are producers of honey, and do not sell on commission.

WM. A. SELSER,  
Dec. 23. 10 Vine St., Philadelphia, Pa.

**DENVER.**—Demand for both comb and extracted honey light, and we do not expect any improvement until after the holidays. Fancy white comb brings \$3.50 per case of 24 sections; No. 1 white, \$3.10@3.25; No. 2, \$2.75. Extracted, 7½¢@8½ per lb. Beeswax, wanted at 22¢@26, according to color.

THE COLORADO HONEY PRODUCERS' ASS'N.,  
Dec. 22. 1440 Market St., Denver, Col.

**CINCINNATI.**—The comb-honey market is a little quiet, as almost everybody is filled up and there is hardly any new coming in. There is no change in prices, and we quote same as follows: Fancy white white, 16¢; off grades, less. The market for extracted white clover shows a slight advance. Fancy white clover brings 8½¢@9; alfalfa water white 6½¢@7½; amber, if any thing, has weakened—quote same in barrels at 5½¢@5½. Beeswax, 27¢@28.

C. H. W. WEBER,  
Dec. 22. 2146 Central Ave., Cincinnati, Ohio.

**SAN FRANCISCO.**—Prices of honey remain the same as when last quoted. The season's honey crop is now all out of the hands of producers; but as honey is only used as a flavoring for glucose there is sufficient on hand for that purpose, and as the compounding of glucose and honey is very profitable at present prices the wholesale price is not apt to advance, save for comb honey.

E. H. SCHAEFFLE,  
Dec. 18. Murphys, Calif.

**NEW YORK.**—The market on comb honey is dull and inactive. While the supply is not large the demand has fallen off to a large extent, and prices show a weakening tendency. Fancy white, 15¢; No. 1, 14¢; No. 2, 13¢; buckwheat, 10¢@12. Extracted white, 7½¢; light amber, 6½¢@7; dark, 5½¢@6. Beeswax, firm at 28¢@29.

HILDRETH & SEGELKEN,  
Dec. 23. 265-7 Greenwich St., New York City.

**FOR SALE.**—Light and buckwheat extracted honey in cans and kegs; sample, 8c.

I. J. STRINGHAM, 105 Park Pl., New York City.

**FOR SALE.**—Extracted honey, from alfalfa, at 7½¢ for No. 1 select, 7c for No. 1, 6½¢ for No. 2; discount on 1000-lb. lots. Send for sample.

D. S. JENKINS, Las Animas, Col.

**FOR SALE.**—White extracted honey from alfalfa in 60-lb. cans, at \$4.50 each; light amber honey mixed with Rocky Mountain bee-plum, fine flavor, \$4.20 each. Prices on small cans and pails on application.  
M. P. RHOADS, Box 216, Las Animas, Colo.

**FOR SALE.**—Alfalfa water-white honey, 60-lb. cans, two in a case, at 7½¢; fancy basswood in 250-lb. bbls., 8c; same in 60-lb. cans, two to a case, 9c. We buy and sell for cash only.  
E. R. FAHL & Co.,  
294, 296 Broadway, Milwaukee, Wis.

**WANTED.**—Beeswax; highest market price paid. Write for price list.

BACH, BECKER & Co., Chicago, Ill.

**WANTED.**—Honey and beeswax. Mail sample, and state price delivered here.  
C. H. W. WEBER,  
2146, 2148 Central Ave., Cincinnati, Ohio.

**WANTED.**—Comb and extracted honey. State price, kind, and quantity.  
R. A. BURNETT & Co.,  
199 South Water St., Chicago, Ill.

**FOR SALE.**—Extracted honey. Finest grades for table use. Prices quoted on application. Sample by mail, 10 cts. to pay for package and postage.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**FOR SALE.**—Several thousand pounds comb honey in Danzenbaker 4x5 sections. Shall commence filling orders in August.  
WM. MORRIS, Las Animas, Col.

**FOR SALE.**—Good quality amber honey, gathered from celandine and buckwheat, in 60-lb. cans, 6 cts. per lb., f. o. b. here; free sample.

O. H. TOWNSEND, Otsego, Allegan Co., Mich.

We will be in the market for honey the coming season in carloads and less than carloads and would be glad to hear from producers everywhere what they will have to offer.  
SEAVEY & FLARSHEIM,  
1318-1324 Union Avenue, Kansas City, Mo.

## Our Advertisers.

Read what a correspondent says: "We may obtain some eggs for winter use without feeding cut bone, but by its use we can materially increase the number. The owner of a hundred hens is losing the price of a good cutter every winter by depriving them of the material which he would be able to furnish at a very small cost. We have discovered that for early hatched chicks it is indispensable. To raise strong, healthy, vigorous chicks a substitute must be found to take the place of the bugs, worms, etc., on which they thrive so well later in the season. A mineral substance is also necessary for hardening the frame of the growing chick; and experiments have proved that chicks fed on green cut bone are never subject to leg weakness. But it is as a winter feed for laying hens that we derive the greatest profit from it."

Send for the printed matter offered by the poultry-supply houses in this issue. Mention GLEANINGS IN BEE CULTURE and get quick service.

"How to Make Money with Poultry and Incubators" is the title of the new 1903 Poultryman's Guide and Catalog (196 pages) of the Cyphers Incubator Co., of Buffalo, N. Y. It shows photographic views of the largest and most successful poultry-plants in the United States, England, Germany, New Zealand, and South America, and contains twelve special chapters, each written by an expert, treating of profitable poultry-keeping in all its branches, as follows: Starting with Incubators, Handling Chicks in Brooder, Feeding Chicks, Duck-Producing on Large Scale, Broiler-Raising, Profitable Egg-Farming, Egg and Poultry Combination, Egg and Fruit Farming, Scratching-Shed House plans, Incubator-Cellar and Brooding-House Plans, Feeding for Eggs, Standard-Bred Poultry. Most valuable book of the kind ever issued. Write today for free copy, asking for book No. 74. Sixty pages devoted to illustrated description of Cyphers Non-Mixture Incubators, Apartment Brooders, Poultry Foods, and Clover Products.

Withdrawn

142163

# We Sell Better Goods

## and for Less Money

than any other manufacturers in this country. Why not? We have the **Best Facilities**, the **Largest Factory**, and the **Least Expense**. We will be undersold by no one. We make **Everything used by Bee-keepers**. Send for 1903 catalog and a copy of **The American Bee-keeper**. Fifty cents a year; now in its 14th year; published especially for beginners. Mr. W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. Order of him and save the freight.

**The W. T. Falconer Man'f'g Co., Jamestown, N. Y.**

## I. J. Stringham, New York City

105 Park Place.

**Honey=jars!** 1-lb. square jars, \$5.00 per gross; No. 25 jar, porcelain top, \$5.75 per gross; nickel cap, fancy, \$5.50 per gross. All clear flint glass. We ship from N. Y. City. Cartons, shipping-cases, every thing a bee-keeper uses. Apiaries are located at Glen Cove, Long Island. Catalog free.

## Bee-keepers!

Send us a list of the goods you want and we will quote prices by return mail.  
• Discounts on early orders.

**L. C. Woodman, Grand Rapids, Mich.**

# It is a FACT



That our line of Bee-keepers' Supplies are some of the best goods in the world, and that our system of dealing with our trade is not excelled by anybody. Plenty of testimony from satisfied customers proves these things. Write and get our suggestions, our catalog, and our discounts for winter-time orders—ALL FREE. Largest stock of Bee-keepers' Supplies in Indiana.

**C. M. SCOTT & CO.,**

1004 East Washington Street,

**Indianapolis, : Indiana.**

## "40 Years Among the Bees,"

BY DR. C. C. MILLER.

A Good Book by a  
Well-known Bee-Keeper.

Every Bee-Keeper  
will want to read it.



IT will contain over 300 pages, be bound in handsome cloth, printed on good book-paper, and illustrated with over 100 beautiful, original half-tone pictures,

taken by Dr. Miller himself. The book will show in detail how Dr. Miller does things with bees.

The first few pages of the new book are devoted to an interesting biographical sketch of Dr. Miller, which finally tells how he happened to get into bee keeping. Seventeen years ago he wrote a small book, called, "A Year Among the Bees," but that little work has been out of print for a number of years. While some of the matter used in the former book is found in the new one, it all reads like a good new story of successful bee-keeping by one of the masters.

### How to Get a Copy of Dr. Miller's Book

The price of this new book is \$1.00, postpaid; or, if taken with the WEEKLY American Bee Journal for one year, BOTH will be sent for \$1.75.

Address the publishers,

**GEORGE W. YORK & CO.,**

144 & 146 E. Erie Street, - CHICAGO, ILL.

If you have never seen the old American Bee Journal, write for a free sample copy and also a catalog of Bee-Keeper's Supplies.

**ROOT'S GOODS AT ROOT'S PRICES.**

# Dittmer's Foundation.

**RETAIL - WHOLESALE - JOBBING.**

Having increased my shop-room, put in power and a new set of machines, I am now producing a better article than ever, with unlimited capacity to meet orders. I use a process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, which enable me to sell foundation, and Work Wax into Foundation for Cash. If you have wax by the 100 pounds or ton, let me hear from you. Catalog giving Full Line of Supplies with prices and samples, free upon application.

**BEESWAX WANTED**

**Cus. Dittmer, - Augusta, Wisconsin.**

# Marshfield Manufacturing Co.



Our specialty is making SECTIONS, and they are the best in the market. Wisconsin basswood is the right kind for them. We have a full line of BEE-SUPPLIES. Write for FREE illustrated catalog and price list.

**The Marshfield Manufacturing Company, Marshfield, Wis.**



## Discounts for Early Orders!

On all Cash Orders received before January 1, 1903, we will allow you a discount of 4 per cent; before April 1, 2 per cent. Send us a list of the goods you want and we will quote prices by return mail.

**G. B. Lewis Company, Watertown, Wis.**

Manufacturers of Bee-keepers' Supplies.

## HEADQUARTERS FOR BEE-SUPPLIES

*"Root's Goods at Root's Factory Prices."*

Complete stock for 1903 now on hand. Freight rates from Cincinnati are the lowest. Prompt service is what I practice. Satisfaction guaranteed. Langstroth Portico Hive and Standard Honey-jars at lowest prices. You will save money buying from me. Catalog mailed free. Send for same. Book orders for Golden Italian, Red-clover, and Carniolan queens. For prices, refer to my catalog.

**C. H. W. WEBER, : : CINCINNATI, OHIO.**

Office and Salesroom, 2146-8 Central Ave

Warehouses, Freeman and Central Aves.

# GLEANINGS

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

## BEES CULTURE

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.  
\$1.00 PER YEAR © MEDINA, OHIO

Vol. XXXI.

JAN. 1, 1903.

No. 1.



HAPPY NEW YEAR!

THAT PICTURE of A. I. Root, page 1030, looks so natural that it makes me kind of lonesome to have a good talk with him.

A HORSE so bad with rheumatism that he was only fit for light work was badly stung by bees, and then he was as good as ever.—*Prak. Wegweiser.*

A COLONY having 11 frames of brood increased in weight from May 2 to 6 33 pounds; another of nine frames increased only half as much!—*Schweiz. Bztg.* Was not that exceptional? With a fourth more brood I should expect more than a fourth increase of stores, but hardly twice as much.

PROF. G. DE BUNGE says in *Zeitschrift fuer Biologie* that, among the hydrates of carbon which serve as foods, honey holds an exceptional place. Of all the sugary matters, honey is the only one containing iron; and, strangely enough, almost exactly in the same quantity as found in white bread. [Put this down as another point in favor of honey as food.—ED.]

YOU ASK what more I want than shaking or brushing, Mr. Editor. I want something that will not deplete a colony of its brood—its future bees. [But when one practices the double-drive plan of returning all the hatched brood to the first drive of bees, he does not deplete a colony; and, if I judge rightly, the majority of the shakers or brushers practice the second drive.—ED.]

I WANT that index for 1902. If I have to take my choice between that and the next number of GLEANINGS, I'll take the index; but I'd rather have both. [You shall have it. I suspect there are many others who have not written for the index who never-

theless want it. We shall be glad to send them a copy any time they call for it. A volume of a periodical, without an index, comes next thing to being worthless—especially so if time is any factor.—ED.]

*Luxemburg Bztg.* relates that a number of drones and workers freshly killed were laid at the entrance of a hive in the evening. Nightingales came and devoured the drones but did not touch the workers. Is it not possible that some other birds have the same discrimination? [Quite likely, although I have seen king-birds catch common bees on the wing. The bee is caught at the waist, and crushed instantly. The bird then alights on a perch, and other observers have said that his birdship chews away at his victim, keeping the *sting* always out of his mouth, until he has extracted the honey and the juice, and then drops it. This part of the performance I have never witnessed, although I have repeatedly seen the act of catching.—ED.]

WE WERE TALKING, Mr. Editor, about a colony that *never thinks* of swarming, and then, p. 1012, you say, "But the colony you think never thinks of swarming may swarm just the same." Well, you *are* incorrigible. We were not talking about what *I think*. We were talking about a colony that *never thinks* of swarming—not one that *I think*. I've no secret by which I can know that a colony will not swarm, but I do not despair of finding some feasible plan of dealing with a colony that will leave it without the desire to swarm, and such a supposed case I was talking about. [Right you are; but, admitting all that, the apiarist must somehow have some means of knowing whether a colony will ever think of swarming. If you can not get that knowledge, then your never-think swarm has no practical value.—ED.]

COMPARING South Florida with the North, H. F. Hill says in *Review* that in Florida bees consume vastly more stores; the period of a queen's useful life is reduced about one-half; combs kept in an open shed from season to season as at the North would be destroyed within a very few days by the moth larvæ; and whereas

in the North quantities of comb honey can be stored in the fall without fear of deterioration, "in the humid atmosphere of South Florida it would most likely become worthless as a merchantable product within a week after being taken from the hive." [This is a condition that prevails in other portions of our country that are warm. The bee-keepers in the extreme south do not need to worry about winter, but they do need to be concerned as to whether the bees have stores enough.—ED.]

PHACELIA seed is advertised in GLEANINGS, but no one has told us yet about its value as a forage-plant. If it has no value in that direction I wouldn't give much for the seed. [We had phacelia seed in our catalog some 20 years ago, but there was so little call for it that we dropped it out. Another thing, it is regularly advertised in the principal seed catalogs at from 5 to 15 cents a packet. You can get it of Thorburn, Henderson, Childs, or Vaughan. They catalog several different varieties, but say not a word in any of them of its value as a forage-plant, although Thorburn says it is good for bees. If it has a value for stock, it must be that it has never been discovered until of late. Better buy a packet and test it, and see if the horses and cattle will eat it. It may be that, like sweet clover, they may be *taught* to eat it.—A. I. R.]

YOU HAVEN'T the right answer to that linden-seedling conundrum, p. 1011. The seedlings come up under the row of 25 or more trees leading down to the road, and neither horses nor other stock have any chance at them. One tree is right in front of the house, and the seedlings come up in the grass, and then disappear the same as the rest. [Ernest's answer may not be right, but I insist that *mine* is. The seedlings can not grow if hindered by grass and weeds, and especially where the mother-tree takes all the nutriment and moisture. Just as soon as there is a second leaf on, take them up and transplant them into a good rich bed. As their natural native home is in the woods, this bed should be shaded by trees in the hottest part of the day, or, better still, by a slatted frame of lath, just as we shade ginseng, evergreen seedlings, etc. I prefer the slatted frame for shade, because, if it is in the shade of trees, said trees are liable to take the moisture and nutriment from the ground. Now, doctor, am I not right about it?—A. I. R.]

THE PERFORATIONS in the cappings of foul brood, says the *British Bee J.*, are because the bees never finished capping the cells or for some unknown reason opened them again. At the Chicago convention I understood N. E. France to say that they were caused in some way by the gases of the decaying larvæ. Strange that so little seems known about it. By the way, I wish you could have heard that man France talk about foul brood. I was inclined to think

it a mistake to give a whole evening to so foul a subject, but afterward concluded the mistake was in me. He made it intensely interesting. [From my own observation, after having examined hundreds and I might say thousands of specimens of foul brood that have been sent us by mail, I am strongly of the opinion that Mr. France is right. Around the perforation it will be noted that the capping has a greasy thinned-out look as if there had been a gradual disintegration of the wax until it became so thin at the center that a hole occurs. I have sometimes thought that the bees attempted to open up these cells, and, getting disgusted with their job because of the foulness of their contents, leave the cells barely opened. But I think the other theory is more tenable.—ED.]

DR. GALLUP has announced in *American Bee Journal* the discovery of something like an umbilical cord in young queen bees, and the idea seems to be received with some favor. C. P. Dadant says in that journal: "If there is an umbilical cord—and there is one if Gallup and Doolittle have not mistaken something else for it—it is time that our scientists found it. . . . But if there is an umbilical cord, it surely exists in all the bees." And if in all bees, why not in all insects? The idea that something playing so important a part in insect life—something that can be seen with the naked eye—should have entirely escaped the observation of all the keen observers who have studied the bee up to the present time is something past easy belief. It is easier to believe that somebody's dreaming. [Some way I can not enthuse very much over this umbilical cord. I did not suppose that the organ belonged to any but mammals. It appears to me that somebody is wading in deep water.—ED.]

FRIEND A. I., that "physical culture" business is a fine thing. You can't be in the best condition all over unless your muscles are worked all over. Many a dweller in the city might add 20 per cent to his life by joining a good physical-culture class. But you're just right, that a proper ration of physical labor at useful work out in the blessed country air is worth all the physical-culture classes in the world. [The trouble with ordinary productive labor is that it is liable to *over*-develop one set of muscles, leaving the others neglected. Scientific physical culture aims to develop all the muscles alike, and not to overdo any of that developing. There are those, however, who practice physical culture in their homes who very often overdo it. I may have more to say about this, as I happen to be one of those who are deriving a great deal of benefit from physical culture of five minutes a day in the house or outdoors. Every muscle and organ of the body is stimulated; and if I live ten years longer it will be because of that five minutes' practice per day. If our readers desire me to give cuts and illustrations I will tell what I know, and not charge them a cent.—ED.]



To-day we start the glad new year  
With resolutions strong  
To do the right, to aim up high,  
And grapple with the wrong.

#### REVUE INTERNATIONALE.

The *Swiss Bee Journal* says, in speaking of honey as a cure for burns: A child two years old was severely burned on the arm, in boiling water. The member was immediately bathed in honey, and wrapped in a linen cloth. The pain ceased immediately, and the healing was very rapid, the honey keeping the air from the burn. The bandage was changed every day. It was easily removed, without hurting the child, by first moistening the cloth with warm water.

Mr. Kyburz, in the *Swiss Bee Journal*, compares the Dadant, Burki-Jeker, and the German (Normalmass) hives, they having respectively a capacity of 150, 100, and 55 liters. He finds that bees in the small hives never reach a normal force. A hive of 150 or 100 liters has its space better filled than does one of 55 liters. The weight of two colonies, one having 11 frames of brood, the other 9, shows for the first a net increase of 15,050 grams, and for the second, 7450 grams, from the 2d to the 6th of May.

It now seems that one of the good medicinal properties of honey is due to the presence of iron—one of the indispensable elements in pure blood. Prof. G. de Bunge, of Germany, says that, of all sugary substances, honey alone contains iron; and, strange to say, the quantity is just about the same as that found in white bread. In 2 lbs. of liquid honey he found 17-hundredths of a grain of salt of iron; and for this reason honey occupies among the hydrates of carbon, which serve as food, quite an exceptional place.

The editor says one of the things most to be dreaded in the apiary is Monsieur le Mole. "The mole makes a nest of dry leaves in the hive itself, and there, finding food and shelter, it lives like a rat in a cheese. It eats honey. The mole is easily recognized. It has a tail as long as that of a mouse, but the animal is larger. Its skin is a beautiful white on the under side, and of a reddish brown on the back. It is still more remarkable for its eyes, which are large and prominent. It is a bad thief." It is a long time since any complaint has been made against the mole in

this country. A little piece of wire netting would keep them out.

A Belgian bee journal tells of a bee-keeper there who has discovered that some birds, at least, will kill drones but never touch a worker. He killed a dozen drones and six workers and put them on a board in front of a hive. This was to test the discriminating powers of the nightingale, which bird seems to be plentiful in that country. In a few moments one of these birds alighted on the board and took the drones but left the workers, seeming to know that the latter were loaded, and not fit for the crop of a bird. We could spare a few workers here for the sake of a few nightingales.



#### RAISING QUEENS; BEE-CAVES.

"Good evening, Mr. Doolittle. I ran over a little while to-night to have a talk with you about something I am very much interested in. I am thinking of going into the queen-rearing business next year; and in order to plan rightly I should like to have you tell me about how many queens can be sold from one nucleus colony in one month. If I can tell this it will help me in deciding how many nucleus hives to make this winter."

"In answering this question, Mr. Jones, I will say that very much depends on the weather, the loss of queens when going out to meet the drones, more being lost some seasons than others, and whether you give the nucleus colony virgin queens or insert nearly mature queen-cells."

"I did not suppose that I could introduce virgin queens successfully, so had not thought of the virgin-queen plan. Is such plan generally successful?"

"Some practice the virgin-queen plan and are successful; and where this is done you might succeed in sending off three queens a month from one nucleus. But, either because I am unskillful or my locality is different, introducing queens from one to three days old from an incubator or queen-nursery has proven an unsafe method with me, and one that causes more labor and worry than the time gained would compensate for."

"That is as I had expected it would be with me, from the few trials I have made with virgin queens, and that was the reason I asked about the success in the matter. Supposing I use the ripe-cell plan, how many would I be likely to get in that way?"

"By using the cell-plan, and having a system perfect enough so that the queen may emerge from the cell within twelve hours after being given to the nucleus, you will usually have a laying queen in said nucleus in ten days from the time of giving the cell. Then in order to have your nucleus hold its own as to bees, this queen should be allowed to lay four or five days before sending her off."

"Why should she stay so long? I should think she would lay enough in one or two days to keep the nucleus good."

"Undoubtedly she would did the bees bring her eggs to perfection; but I have found that, as a rule, if the queen is taken away when the combs contain only her eggs, the bees will remove or devour the most of them; when if a part have hatched into larvae, all will be preserved, and in this case our nucleus is strengthened in bees according as the queen lays eggs."

"Then I shall not be likely to get three queens a month from a nucleus?"

"No, I think not; for we have yet to consider the loss of queens on their wedding-trip, as hinted at before, when in some seasons quite a few fail to return, while others are sometimes balled on their return till they die, or are valueless, either for sending off or for home use; and any or all of these things make the matter of any certain number of queens from any nucleus, in any certain time, very uncertain."

"What has been your average?"

"My average number from a nucleus, during the past fifteen years, has been about two a month, and that is about the way I feel safe in calculating. Some nuclei do better, others not as well, so it is always well to calculate on having a few more nuclei than you really think you will need to fill all orders; and even then if your case proves any thing like mine you will be obliged to return money for some unfilled orders at the end of the season."

"Well, perhaps we have talked long enough on this matter. I think I can calculate very well from what I have learned. I now wish to ask you something about a winter repository for my bees for another year. I have determined that this shall be the last winter I will leave all of my bees outdoors, and I wish to commence operations this winter while I have leisure time to work."

"What kind of repository did you think of building?"

"There is a clay bank near my bee-yard. If I dig into this bank a hole some 24 to 30 feet long, 10 feet wide, and 7 feet deep, walling the same with stone, the front end of which will be out of ground considerably, will it be too damp for the bees?"

"I think not if well drained, and probably it would not be too damp if not drained at all, only so that the water may not come up about the hives, should a sudden freshet occur during the winter."

"But do you not consider dampness injurious to bees?"

"No, not under certain conditions. I believe I am right in saying that none of the bee fraternity have ever positively proven that dampness is injurious to bees. May I ask a question? Is not a damp cellar the best to winter bees in? A moist air is promotive of health in our houses—why not in bee-cellars? In many places, schoolrooms are not considered fit for pupils unless there is a dish of water on the stove or other heater, continually giving moisture off into the air."

"Is it not thought that dampness causes bee-diarrhea?"

"It is so stated by some, but I believe dampness in winter repositories is one of the agencies in causing bee-diarrhea *only* when the temperature is so low as to condense the vapor on the inside of the hives and combs. In all of this talk on this subject it would be well to consider the difference in effect on animal life between a warm damp atmosphere and a *cool* damp one for cellar wintering. It is the *cold* damp atmosphere that is to be dreaded; and unless that front end of your proposed cellar is well covered with earth I should fear too low a temperature during cold spells in winter, which low temperature would cause the dampness to be detrimental to the bees. I should be much more concerned to have the temperature entirely in my control than about dampness."

"What should the temperature be to secure the best result?"

"From 43 to 48 will do pretty well; but a steady temperature of 45 is as near perfection as can well be obtained. Give me a cellar that will not vary from 45, and good stores, and I have little fear as to how the bees will come out in the spring. This I say after many years of successful cellar wintering, and after watching others who have invariably wintered their bees well also."

"Well, how can I fix that front end?"

"After you have your cellar or bee-cave built, cover the front end over with from three to four feet of earth, and over the whole put a roof so that the dirt may be kept dry at all times of the year, and I think you will find you have something that will be a joy to you for years to come, no matter whether you have two hundred colonies or twenty to winter therein."

"How deep would you go into the bank?"

"The deeper and further back you go into your knoll the more even will the temperature be likely to keep; and the more even the temperature, if it is as high as 45 or above, the more successful will the bees winter. I have used successfully a cellar (very similar to the one you propose building) for 26 years, with the exception of one winter when I used an oil-stove in it, when I lost heavily through the poisonous vapor given off into the room by this stove."

"I must be going now, and I thank you for your advice on all of the many points we have touched upon."



WE have a larger amount of good available matter on hand awaiting insertion in these columns than we ever had before. Some of it may not be published for two months yet. Those of our friends who have sent us some good articles will understand why they have been delayed.

#### AN ENCOURAGING OUTLOOK FOR CALIFORNIA.

M. H. MENDLESON, of Ventura, California, on Dec. 12th writes: "We are now having a splendid rain. Last season at this time the soil was nearly dried up." This year he says the ground is wet down nearly three feet, and present indications go to show that this will be the wettest winter they have had in years. This, if it means any thing, means that 1903 may be a big year for honey.

#### ANTS THE CHIEF MEANS OF SPREADING PEAR-BLIGHT.

THE statement is made in *American Gardening*, referring to pear-blight, that the blighted twigs exude a milk-white liquid; that this fluid the bees are likely to get and spread to the flowers of healthy twigs which they may visit. The bees would have no occasion for sucking up the virus, and there is no use in laying the blame on them, where common ants (very numerous in California where the blight is the worst) crawl all through it and thence all over the trees. While the bees may spread the virus from a diseased to a healthy blossom, it is extremely improbable that they should seek out the poisonous sap from a diseased twig.

While I was in California looking through those great pear-orchards, so fearfully blighted, I saw ants in great numbers crawling all over the diseased and healthy twigs, and some of the twigs were covered with that deadly milky fluid. I believe the time will come when it will be proven that the bees are not the chief means of spreading the blight; that those ever-present ants, that are continually crawling over the trees from top to bottom, will be declared to be the real culprits.

#### BUTTERFLY VS. BEE AS A BLIGHTING AGENCY; WHAT THE BUTTERFLY IS DOING IN THE WAY OF DESTROYING ALFALFA, PREVENTING IT FROM YIELDING HONEY WHEN IN FULL BLOOM.

WHILE I was sojourning in Arizona I was told that one of the worst pests of the alfalfa was a little yellow butterfly that

hovered over the great fields in such immense numbers that the air was almost yellow with them at times. I was told that they would eat the blossom, injuring the plant and cutting off the exudation of honey. Now it appears, from an article in the *Weekly Tulare Register*, Tulare County, California, for Dec. 12, that the butterfly may be also responsible for blighting alfalfa in California; and why shouldn't it be, when there are such countless numbers of them at just the right season of the year? Mr. A. D. Fleming, in the issue above named, has this to say:

What has become of the Hanford fruit-men who are accusing the honey-bees of spreading the pear-blight? They said they were going to inclose last spring a few of their pear-trees while in bloom, those that were not affected with the disease, to see if the bees had not been spreading the disease. My fight is not against the poor honey-bees, but for them. I want to know what we are going to do with the yellow butterflies that are about to starve the bees to death. They are intermediate in size; and when the alfalfa gets in bloom they are there by the millions to stay as long as the bloom lasts, and to suck the last bit of sweetness out of the bloom. I should judge that there were enough alfalfa-blossoms on my ranch to have made a thousand pounds or two thousand of honey. But, alas! I have only three stands of bees; and every time I examined their supers they proved to be empty, save one that made some 5 pounds of honey. It was about all they could do to live. The poor bees would come in from foraging so weak, so tired, and perhaps hungry, that they would fall down at the mouth of their hive exhausted, scarcely able to get in. Starving the bees is not all that Mr. Butterfly has done. He blights the alfalfa bloom, which prevents it from seeding well. They are like the grasshoppers, worse in some places than others. They struck my alfalfa so hard that it was impossible for any of it to go seed.

Tulare, Dec. 10, 1902.

A. D. FLEMING.

#### PASSAGE OF THE PURE-FOOD BILL IN THE NATIONAL HOUSE OF REPRESENTATIVES.

RECENT press dispatches show that this bill, which has been so long before the public, and for the enactment of which there has been such a strong demand, has finally passed the lower House by a good substantial majority. The majority is so strong that it would seem as if it ought to go through the Senate with a rush; but it is very probable that, this session being a short one, the bill may be "held up" in committee by "influence" brought to bear by the food-mixers or glucose people. We would urge every one of our subscribers to write to his Senators, urging the support of this most excellent measure. Don't delay writing, but attend to the matter just as soon as you read this item. Go to your desk and write a letter at once. Let us keep the iron hot, for there is no more important work before the bee-keepers of our land just now than this. The following is a copy of the item in one of the press dispatches:

Washington, December 19.—The House to-day passed the pure-food bill by a vote of 72 to 21. There was not a quorum present, but the point was not raised by the opponents of the measure. The speakers to-day were Messrs. Richardson (Ala.), Hepburn (Iowa), Gaines (Tenn.), and Schirm (Md.), for the measure, and Mr. Chandler (Miss.) against it.

The bill prohibits the introduction into any State or Territory or the District of Columbia, or from any foreign country, or the shipment to any foreign country, of any article of food or drug which is adulterated or misbranded. The above inhibition is made to apply.

to any one shipping or delivering within the regions named any such food so adulterated. Adulterations in the bill are defined as follows:

In the case of drugs, if sold under a name recognized in the United States pharmacopeia, and the drug differs from the standards of strength, quality of purity, as determined by the test laid down in such pharmacopeia at the time of the investigation, so that its strength or purity falls below the professed standard under which it is sold; if it be an imitation of or offered for sale under the name of another article, and in the case of a confectionery, if it contain terra alba, barytes, talc, chrome yellow, or other mineral substances, or poisonous colors or flavors.

In the case of food, when any substance is mixed with it so as to lower or injuriously affect its quality or strength so that such product when offered for sale shall tend to deceive the purchaser.

If it is falsely labeled as a foreign product, or imitation of another substance of a previously established name, or which has been trade-marked or patented. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, or if it is the product of a diseased animal or one that has died otherwise than by slaughter.

### GROWING ALFALFA; ITS FOOD VALUE; IS IT A FACT THAT IT IS MORE PROFITABLE FOR THE RANCHER TO CUT THE ALFALFA BEFORE OR JUST AS IT BLOOMS THAN AFTER IT HAS GOT INTO FULL BLOOM?

Bulletin No. 114 of the Kansas State Agricultural College Experiment Station has reached my desk. It contains a great deal of valuable information on the subject of alfalfa-growing, and I only wish that I could publish the entire text of it. As it is, I find it possible to place before our readers only a few paragraphs from it.

In some of my late articles I have spoken of the value of alfalfa hay as a food for stock. In one case I mentioned that 110 pounds of alfalfa hay was equal to 100 pounds of bran for nutritive value. On page 80 of the bulletin above mentioned there is a paragraph that bears directly upon this point, and here it is:

#### COMPOSITION OF ALFALFA.

The following table, compiled from Bulletin 103, issued by the chemical department of this Station, shows the per cent of digestible matter found in various feeds. The percentage is calculated on the material in the condition it would be found when fed:

| FEED TESTED.                           | Protein. | Carbo-<br>hydrate. | Fat. |
|----------------------------------------|----------|--------------------|------|
| Alfalfa hay, cut 10 per cent in bloom. | 13.24    | 39.26              | 0.89 |
| Alfalfa hay, cut half in bloom.        | 11.90    | 40.26              | 0.39 |
| Alfalfa hay, cut in full bloom.        | 10.43    | 43.17              | 0.69 |
| Red-clover hay                         | 6.58     | 35.55              | 1.66 |
| Timothy hay                            | 2.89     | 43.72              | 1.43 |
| Prairie hay                            | 0.61     | 46.90              | 1.97 |
| Corn-fodder                            | 1.98     | 38.16              | 0.57 |
| Kafir-corn fodder                      | 3.22     | 48.72              | 1.15 |
| Wheat bran                             | 12.01    | 41.23              | 2.87 |

The digestibility of alfalfa hay, prairie hay, and Kafir-corn fodder was determined in feeding experiments made at this Station by the chemical department.

This table shows that in protein, the most valuable part of our feeds, alfalfa hay cut when one-tenth in bloom is worth ten per cent more than bran. In other words, a ton of good Kansas alfalfa hay will supply as much of the material needed to make growth of lean meat, milk, and blood as 2,000 lbs. of wheat bran. The reader can easily make comparisons with other feeds. Kansas alfalfa can be raised, cut, and cured and put in the feed-racks on the average farm for two dollars per ton. The large yield has already been shown in this bulletin. A consideration of the yield, the composition, and the cheapness of alfalfa should be a strong inducement to Kansas farmers to increase

their acreage and handle their seedlings of alfalfa in such a way as to secure the largest yield and prolong the life of the plants.

It has often been asked how to prepare the soil, how much seed to sow, etc. The following covers the matter quite fully, at least for the region of Kansas, and it would probably apply to all the territory in the semi-arid regions from Iowa down to Texas:

If the soil and the air are moist, the most even stand is secured by sowing the seed broadcast. Cover lightly with a harrow and then roll, unless there is danger from blowing. If the weather is dry or there is much wind, broadcast seeding is a failure. The seed germinates close to the surface of the ground, and the wind dries out the soil and kills the young plants almost as fast as they start.

Generally the best way to sow alfalfa is with a press-drill. Mix the seed with equal parts by measure of coarse corn chop, bran, or fine sawdust; drill and cross-drill, sowing half the seed each way. If either a hoe or disk drill is used, care must be taken not to get the seed too deep; about twelve times the diameter of the seed is the proper depth, if this places the seed in moist soil. The press wheels pack the moist soil closely around the seed, causing quick germination. Occasionally a heavy beating rain will fill up the drill furrows before the seed has germinated, and bury it so deeply that the young plants die before they can get to the surface. In the fall of 1901 this Station lost 12 acres from this cause. This difficulty is not common.

Alfalfa should be sown alone. It does not want a nurse crop. Sometimes a good stand is secured when alfalfa is seeded with some other crop, but many times it fails utterly. Young alfalfa is a delicate plant, and it needs all the moisture, plant-food, and sunshine available; and usually, when it has to share these with another crop, it dies.

But the all-absorbing question, the one that is *important and vital to the bee-keeper* located in the alfalfa regions, is whether it is good practice for the rancher to cut his alfalfa *as or just before it comes into bloom*. Two or three of our correspondents have said of late that there was no cause for alarm, that it was not profitable to cut at such a time. But the statements made in this bulletin would seem to indicate that it is profitable to cut it just as the plant first comes into bloom; and that means then that the bees will not get very much benefit out of it. The melancholy facts (melancholy to bee-keepers at least) are thus stated on page 65:

#### WHEN TO CUT ALFALFA FOR HAY.

Alfalfa should be cut when not more than one-tenth of the plants have come in bloom. Cut at this early stage, the yield of hay for the season will be much greater than if the alfalfa is cut near maturity, and every pound of hay secured will be worth more for feed.

We cut a strip through a field of alfalfa when one-tenth was in bloom; another strip was cut after full bloom had passed. The strip cut early was nearly ready to cut the second time when that cut after full bloom was being harvested the first time. The strip cut early grew vigorously through the season, and made three cuttings and a good aftermath. The strip cut after full bloom gave a low yield the first cutting, and did not grow sufficiently to yield a good second cutting. Early cutting invigorates the plant.

The late cutting of the first crop seems to injure the plant more than at any other time, and we have found it profitable to cut alfalfa the first time as soon as one-tenth was in bloom, even though the weather was bad and we knew that the crop would spoil in curing. The increased yield from succeeding cuttings over that cut late much more than makes up for the loss of the first crop.

Successful clover-growers the first time they try alfalfa often ruin the stand, so that it has to be plowed up, by waiting to cut until it reaches the stage at which clover is usually cut.

The great value of alfalfa is the large amount of

protein it contains, that material in feed that is absolutely necessary for the formation of blood, lean meat, and milk. The higher the protein in alfalfa, the more valuable the crop. The chemical department of this Station found the effect of cutting alfalfa at different stages as follows:

|                         | Protein.       |
|-------------------------|----------------|
| One-tenth in bloom..... | 18.5 per cent. |
| One-half in bloom ..... | 17.2 "         |
| In full bloom.....      | 14.4 "         |

The Colorado Experiment Station found the effect of cutting alfalfa as follows:

|                       | Protein.       |
|-----------------------|----------------|
| Coming in bloom ..... | 18.5 per cent. |
| Half in bloom.....    | 14.6 "         |
| In full bloom.....    | 12.9 "         |

The Utah Experiment Station for five years cut alfalfa at different stages of maturity, and fed the crop in producing beef. The average production per year per acre was as follows:

|                         | Hay.       | Beef.    |
|-------------------------|------------|----------|
| In first bloom.....     | 5.35 tons. | 706 lbs. |
| In full bloom.....      | 4.90 "     | 562 "    |
| Half blooms fallen..... | 4.55 "     | 490 "    |

These experiments made in three States—Kansas, Colorado, and Utah—prove that alfalfa cut in the first bloom will give the greatest yield and feeding value.

#### HOW TO CURE ALFALFA.

The leaves of alfalfa contain nearly four times as much protein as the stems, a ton of dried alfalfa leaves containing as much protein as 2800 pounds of bran. Every effort, then, should be made to cure the alfalfa in such a way as to save all the leaves possible. The method of curing will vary with the condition of the crop, ground, and weather. When alfalfa has made a slow growth, and at the time of cutting the ground and the weather are dry, there is no difficulty in curing. Often, under these conditions, it is safe to rake within a few hours after mowing, and stack a few hours after the alfalfa has been put in the windrows. When alfalfa has made a rapid growth, and is rank and succulent, and the weather and ground are damp, the problem of curing is a difficult one. It is easy to dry the leaves, but the stems will contain much moisture after the leaves are too dry. Alfalfa hay should become so dry before stacking, that, when a handful of stems are twisted together, no water can be squeezed out. The most practical way to accomplish this, and at the same time save the leaves, is the plan to adopt, and this will vary with different seasons and places.

There is usually no difficulty in curing any but the first crop. When the conditions for curing the first crop are unfavorable, we have usually found the most practicable methods to be to cut the alfalfa early in the morning, after the dew is off, allow it to barely wilt in the swath, then rake, and, before night put in tall narrow cocks. After the dew is off the next morning, and the surface of the ground has become dry, we open these cocks carefully, so as not to shatter off the leaves. If the weather is favorable the hay may be stacked in the afternoon; if not, we recock carefully, and repeat treatment until the hay is properly cured.

It was M. A. Gill, I believe, who said we need have no cause for alarm; but when one reads very carefully what is said in this bulletin here quoted he is led to wonder if it is not true after all that the bee business in the alfalfa regions will, after a while, become less and less profitable. If the statements contained in this bulletin are true, the rancher will look to his own interest rather than that of the bee-keeping neighbors round about him; and if he can get help enough at the right time he will cut his hay just before it will be of any value to the bees.

#### AN EXPERT DECEIVED OR MISLED.

In the Bulletin of the North Carolina State Board of Agriculture at Raleigh, for September, appears a statement to the effect that pure honey may be defined as a nectar of flowers and other saccharine exudations of plants gathered by bees, and stored in

cells built at least in part by the bees themselves. So far, so good; but next appears the following remarkable statement:

Honey is subject to much adulteration, the adulterants (and substitutes) being glucose, cane sugar, and invert sugar, and mixtures of these. "Honey in the comb" is frequently glucose which has acquired more or less honey odor and flavor by being poured into comb from which the genuine article has been drained.

It is bad enough to have lies circulated about us and our business by the ordinary newspaper; but when a supposedly expert man, who is expected to know and understand his business, takes hearsay evidence like this and puts it forth as sober scientific fact, the matter is still worse. A marked copy of this will be sent to the State Chemist, Prof. B. W. Kilgore, who, we hope, will rectify the statement in the next issue of the bulletin. If he thinks it is possible to pour glucose into comb and then cap it over by machinery or by any process whatsoever, so that the stuff will deceive the public or any one else (for that is implied as a result also), we should like to have him prove the fact. Yes, we will pay him one thousand dollars in gold if he can demonstrate that it can be done. Glucose is too thick and too mucilaginous a substance to be poured into comb in such a crude manner as that. In fact, it will hardly pour at all, to say nothing of running into the cells, expelling the air, even if it would be possible to cap the combs over afterward by any art known to man. We trust that Prof. Kilgore will do us the kindness to look into this matter a little further.

#### ARE BEES NECESSARY FOR THE FRUIT-GROWER AND GARDENER?

We extract the following from the *American Agriculturist* for Nov. 29:

The cucumber blossomed, but that was about all. Some grew  $\frac{1}{2}$  or  $\frac{3}{4}$  inch long, and then shriveled up. Mr. Bunce thinks this result was owing to the flowers not being fertilized in the natural way through the agency of bees. When the doors of the tent were opened the bees came in freely, and after that some cucumbers grew large enough for small pickles. Before the bees entered not a single cucumber set. The melons did not do well, but this might be partly in consequence of their having been planted late.

The presence of bees in a tent is considered by Mr. Bunce indispensable to success. He thinks if the doors of the tent were left open in the middle of the day, bees would come in. When asked if other and unwelcome insects would not also enter, he replied that the moth producing the tobacco-worm flies only at night. He says *strawberries have been grown under cloth on Long Island with brilliant success, the fruit maturing two weeks earlier than in the open. But bees must be allowed free entrance.*

The article is headed "Growing Vegetables Under Glass," and gives a record of a number of recent experiments. I have clipped only a small part of the article, and mainly to show not only the value of the bees but the absolute necessity of them under some circumstances for a successful crop; and in regard to this matter of cloth protection our readers may remember the report I made from our Ohio Experiment Station. I think there is a new field open, of considerable promise, for growing many products under cloth.—A. I. R.



### BULK COMB HONEY.

**Its Demand; Its Production Profitable.**

BY H. H. HYDE.

A few years ago bulk comb was practically unknown; but to-day there is scarcely a bee-keeper in the United States who has not heard of it and how it is produced; and it is now the principal product of the Southwestern Texas bee-keepers. Its production is rapidly gaining ground, not only all over Texas, but is gaining a footing in Nebraska, Colorado, and Utah. The demand from the consumers for this article is rapidly growing, and is keeping far ahead of its production; and of this fact the bee-keepers are rapidly catching on. There are many reasons why it is gaining a hold with both the consumer and the producer, and especially the former. When the consumer buys a can of bulk comb honey he feels sure that he is getting a pure sweet, just as the bees made it. He feels that he is getting full weight, and he knows that he has bought it at a less price per pound than he could have bought section honey. Then he has his honey in a nice bucket where the honey can not break or lose out when cut into; and when he has eaten out the honey he has a useful pail left. These are some of the reasons why the consumer prefers bulk comb honey to section honey. I am talking of the majority of the people. Of course, there are the wealthy who will always buy a limited quantity of section honey because it is high in price and has to them a fancy look.

Bulk comb is produced in either full bodies or shallow Ideal supers. If the former is used it is hardly practical to fasten in full sheets of foundation, as the frames can not be wired because we expect to cut the honey out; but with the Ideal frames we can use full sheets if we so prefer. Ideal supers and frames are preferred generally, because they are not so large, are not so heavy to handle, are nearer the right amount of room to give a colony at one time, and they can be freed of bees much quicker than full bodies. To free them of bees we simply smoke down between the frames well, and then pry the super loose and jounce it, when it will be found that most of the bees will fall out. They can then be stacked up and a hole left at the top, when in two or three hours' time the last bee will have left the supers. Then, again, the supers and frames are nice for extracted honey, should the bee-keeper in any event desire to so use them; and, in fact, in

putting up bulk comb it requires about one third extracted honey with which to put the comb up.

In packing bulk comb we cut out the comb nicely and place it in the cans, and afterward pour in extracted honey to cover the comb and fill up the crevices, and in this way about one-third extracted honey goes in; and it must be remembered that this extracted honey goes in at the comb-honey price. It has been found both practical and profitable to produce both comb and extracted honey in the same apiary, and, in fact, on the same hives at the same time; for many have found that it pays them to have one super of combs on top of the regular brood-nest so that the queen may fill it with brood before the honey-flow, if she likes; and when the flow comes these supers catch the first nectar; and as soon as the flow is on and the bees have commenced to secrete wax, this super of combs is lifted and the empty frames of foundation placed between them and the brood, which is the most effectual way of baiting bees into the supers; and it will be found that, where colonies are so worked that swarming is kept in check, if not entirely prevented, the queen is left in entire possession of the regular brood-nest; and by the time the flow is over, the brood will have hatched from the shallow super of combs, and the bees will have filled it with extracted honey; and this is just what we shall want in putting up our comb honey, as we have already shown that at least  $\frac{1}{3}$  the honey must be extracted with which to pack the comb. It has been demonstrated time and again that bees will store all the way from 50 to 100 per cent more honey when worked for bulk comb than they will when worked for section honey; and many believe (the writer included) that, where the bees are worked as outlined above, nearly if not quite as much bulk comb honey can be produced as could be produced of extracted honey alone; and especially does this hold good where the localities have fast flows of honey, in which a great amount of wax is always secreted, whether there are any combs to build or not.

We will now show the relative cost of bulk comb to section honey. When we buy bulk-comb supers and frames we have bought them to use for years; when we buy sections they are for only one season's use, whether they are filled with honey or not. Then we have to have costly separators, followers, etc., that soon give out to be replaced. When we go to ship we have to have costly glass-front shipping-cases, and these cases in turn are packed in crates for shipment. When we pack section honey we have to take lots of time and patience to scrape the sections. When we pack bulk comb honey we buy cases of cans and cut the honey out into them.

When we get ready to ship we have to pay a high rate of freight on section honey, and run the risk of having a good part of it badly damaged or destroyed altogether.

When we ship bulk comb we get a low extracted-honey rate, and have the assurance that it will go through as safely as if it were extracted honey. When we go to prepare supers for the harvest, all we have to do to our bulk-comb supers is to scrape the top-bars a little and fasten in the foundation; but with section honey we have to make up shipping-cases and sections, and spend a long time putting the foundation in just right. When the supers are put on, the bees go to work in the bulk-comb supers at once, and in a big cluster, thereby forgetting to swarm; but with section supers the bees have to be carefully baited and coaxed into the supers; and when they get there they are cut off into 24 or more small compartments which they have to try to keep warm; and to get them sealed out to the wood we have to crowd the bees, thereby losing honey. By crowding we lose as much honey as we do when the supers are first put on by reason of the bees being slow to enter the sections. Just how much honey is lost by the bees being slow to enter the sections, how much is lost by crowding, and how much is lost by swarming, I am unable to say; but it is considerable.

You may take the items in the production of the two honeys from beginning to end, and there is not an item that is not in favor of bulk comb honey, except solely in the matter of price received; but, friends, where unbiased men have tried the production of the two honeys side by side, and carefully taken into consideration every factor, they have invariably found that they can make at least 50 per cent more money producing bulk comb; and many have placed the per cent much higher.

There is another fact: Not one of the men who once quit section honey has gone back to it. We were ourselves large section-honey producers several years ago, but have been converted, and have disposed of most of our section-honey supers, and to-day have a large pile of them awaiting a purchaser.

You may say, "I have no trade or demand for bulk comb honey." I will say that all you have to do is to produce it and offer it for sale, and you will soon have a trade that nothing but bulk comb will satisfy. You may say, "But I shall have to ship my honey, and what then? There is no market for this new product." I will say, take your honey to the cities and offer it yourself, and you will find a ready and appreciative market, and one that will next year demand more bulk comb, and the grocers will have to order their supplies from you. There is no question that a market can be found. The bee-keepers of Texas have found a market for more than they can produce, and I take it that the bee-men of other States have the same intelligence and the same "get up and get" that the Texas bee-men have.

The packages used in putting up this article are now most largely 3, 6, and 12 lb. tin friction-top pails that are put up in

crates holding 10 of the 12-lb. cans; 10 of the 6-lb. cans, and 20 of the 3-lb. cans. There is also some demand for bulk comb in 60-lb. cans, 2 in a case, the cans having 8-lb. screw-tops. These are sometimes ordered where the buyer desires to put the honey into glass packages for a fancy trade.

In conclusion, I wish to refute the statements made, that the production of bulk comb honey was the old-fogy way of honey production. I assure you that it is not, and that it requires as much skill and as fine a grade of honey as it does for section honey. I also assure you that the consumers are behind this move, and that it is only a question of time when the production of section honey will almost have disappeared.

Should there be any who read this, who desire further information, I shall be glad to give it.

Floresville, Tex.

[In my southwestern trip of a year and a half ago I was fully convinced that bulk honey or chunk honey was getting to be more and more in vogue, both among progressive bee-keepers and the consumers themselves. Still, I found some bee-keepers who thought it would be better to educate the consumer to the use of section honey, believing there would be more money in the production of such an article. But I must admit that Mr. Hyde has advanced some very strong arguments in favor of chunk honey; and why should we bee-keepers not cater to the various demands? One locality will use large quantities of candied extracted honey; another will use nothing but crystalline liquid extracted; still another, fancy comb honey; still others dark honey, almost as black as black strap itself. Cater to what the locality calls for.—ED.]

#### ABOUT WINTER REPOSITORIES FOR BEES.

The Question of Temperature and Moisture; Ventilation vs. no Ventilation.

BY G. M. DOOLITTLE.

It is often well to take a look over the past at the end of the year, to see if we have made an advancement, stood still, or gone backward; and if we have stood still or gone backward, then we should make an effort to do better during the year to come. These thoughts presented themselves to me on reading of late, pages 154, 187, 294, 323, 337, 364, 371, 373, 374, 375, 383, 387, and 475 of GLEANINGS for 1902, on all of which will be found items of more or less length pertaining to wintering bees in special repositories, such as consumption of stores, uneasiness of bees, setting out for a flight, opening and closing doors, etc. From the reports given on many of these matters I can not help thinking that the trend of thought there expressed is backward rather than toward advancement. It will well repay all those interested in wintering bees

in cellars and special repositories to go over those pages again carefully, during the long winter evenings that are now before us. I had calculated to notice this matter last spring; but as we were into the summer before some of the articles appeared, I thought best to wait till this time, when the matter would be appropriate again. I can not help looking on any plan of wintering which requires the looking after ventilators all winter, the opening and closing of doors nights and mornings, and the setting of the bees out for a flight during winter, together with a consumption of 20 lbs. of honey per colony on an average (after all that work) as faulty, when apparently bees winter equally well, if not better, on the non-ventilation plan, with *absolutely no work* during winter, and with an average consumption of only about 6 lbs. per colony. On pages 154 and '5, I was invited to try the large 16-inch-square ventilator; but I thought best to wait about the matter till I saw the outcome with those who were trying it, which outcome is given on some of the pages referred to at the commencement of this article. Now, Mr. Editor, please allow me to lay alongside of these reports my own for the winter of 1901.

The bees were gotten out of the cellar (regarding what the cellar is, see pages 187 and '8, GLEANINGS for 1902, and A B C book) on the 15th, 16th, and 17th of April, and came out in excellent condition. The loss was only one out of seventy, and that one was queenless with but few bees when put in the cellar. The consumption of stores from the latter part of September, at which time they were prepared regarding their winter supplies, to the time of setting out, averaged about 6 lbs. to the colony. This number of pounds was not ascertained by weighing wet hives in the spring, as Mr. Bingham would have the readers of GLEANINGS suppose (page 294), for I do not estimate stores by weighing hives and their contents, as he does. I "weigh" the honey in each frame in the fall, and then again in the spring; consequently the weight of the hive (and of the bees) has nothing to do with the matter.

In passing, allow me to say to Mr. Bingham, in answer to his question on page 294, I have never recommended putting bees in to winter quarters with as little as from 5 to 10 lbs. of honey; but on several occasions where my *own* bees have been short of stores in the fall I have put them in the cellar with from only 12 to 15 lbs. of stores, and never yet had a single colony starve while in the cellar. The present fall and winter, over half of the colonies have less than 16 lbs. of stores; but where so little is allowed in the fall these colonies need looking after as soon as brood-rearing commences in the spring, or they may then starve; for with rapid brood-rearing comes a rapid consumption of honey. But, to return.

An even temperature of 45 degrees was maintained in the cellar practically all winter, or during the time the bees were in

winter quarters, which was from the latter part of November till April 15th to 17th, or approximately five months. The changes of temperature outside had no perceptible effect on that within, and the bees were aware of nothing except one apparently endless dark night, with a temperature and environment perfectly agreeable to them. After the bees got settled down from being placed in the cellar I went in and found the temperature at about 45½ degrees above zero. When I next went in we had had a month without the snow even softening in the shade, while much of the time during this month the mercury had stood at from zero to eight below, yet I found the temperature inside the cellar at exactly 45 on entering it. Then in the spring it had been so warm from March 20th to the time the bees were set out that all of those 10 to 15 foot snowbanks, spoken of on page 187, were all gone, and the grass quite green; but in going into the cellar to commence setting the bees out, a look at the thermometer found it standing at 45½, or the same it was soon after the bees were set in the fall previous. Here allow me to digress again.

Mr. Bingham says (page 387), "The temperature of the earth below the frost-line is between 32 and 34, yet Mr. Doolittle has no trouble in keeping his bees at about 50. How is that 10 to 20 degrees of heat obtained? I need not say by the consumption of honey—every one knows that." Years ago, when discussing this wintering problem, James Heddon told us that the temperature of the earth a few feet below the frost-line was not far from 42 the year around; and from many experiments made I proved that Mr. Heddon was correct. And as the back end of my bee cellar or cave is ten feet under ground, and over all two roofs, between which there is from three to four feet of *dry* earth, the temperature therein rarely goes lower than 42 when it is shut up, whether there are any bees in it or not. Hence Mr. Bingham's 10 to 20 degrees melt away to only *three* that the bees have to warm by the consumption of honey. And the strange part of the matter is that both Mr. Bingham and Editor Root think I would be so much better off if I would put in a great big ventilator to run the warm air, which the earth gives, out into the cold, so that I could have the pleasure of having each colony consume an average of 14 pounds more of stores each winter, to say nothing of the extra work of attending to ventilators, opening doors, and setting the bees out for winter-flights, besides having a part of them come out weak in the spring, or fail entirely, as Mr. Bingham admits a part of his did, on page 475, and all for the sake of getting rid of dampness or moisture! Let me repeat again, gentlemen, that "dampness does no harm to the bees so long as the temperature is right."

And many of the colonies, nearly half, were made up of united nuclei used during the summer for queen-rearing, all of which came out in excellent shape, and built up

to good colonies early in the season, in spite of our unfavorable and wet spring. While Editor Root was reporting his bees uneasy and roaring, only as the doors were opened, my bees were as quiet as they were in December, and the loss of bees on the cellar bottom was scarcely more than six quarts during their whole stay in the cellar. No, no, gentlemen; until you give a better report than you have done I can not afford to put in one of those great 16-inch-square ventilators—no, not even for the sake of testing the matter. But I do not have the least objection to Mr. Bingham, Editor Root, and all others who are so inclined, shutting their ventilators *entirely* for a week or two, or putting their repositories in a condition where an even temperature of 45 degrees is maintained, for “the sake of testing the matter;” for by so doing they may see their way clear not to advocate a backward movement as they did the first half of 1902.

In closing I wish to notice a little argument of E. R. Root's which is based on a fallacy. It is found on page 375. The argument is based on the mistaken idea that during *winter* “the temperature of their (bees) bodies is about the same as ours or any warm-blooded animal.” I think, now that I call his attention to the matter, Mr. Root will remember that, in the experiments which I conducted several years ago, during two winters, with a self-registering thermometer, conclusive proof was given that, at all times when in winter quarters, when the bees were in a state of quietude so conducive to good wintering, and when no brood was being reared, the temperature inside the cluster was only from 63 to 65 degrees; while when in uneasiness, or when brood was being reared, the temperature of the center of the cluster went up to from 95 to 98 degrees, or to about the temperature of the human body. This shows the reason of the great consumption of stores where bees are uneasy and go to brood-rearing, in that they have to “burn” honey to raise the temperature of the cluster from 63 to 65, up to 95 to 98. And with this extra consumption of stores usually comes out of season brood-rearing, rapid wearing-out of vitality, bee diarrhea, spring dwindling or death, or both. It is a very rare thing that any brood is found in any of my colonies when first set from the cellar, but during the next three weeks the hive sars filled with brood to an extent never obtained by those which have become uneasy and brooded out of season. And as the bees which may survive from this out-of-season brooding are practically of no use it is far better that the bees keep quiet, with no brood till spring is fully open, and then go to brood-rearing with a will, using their stores and vitality in perfecting bees which, when coming on the stage of action, count from the start toward a prosperous season. Think the matter over, brethren. If I am at fault, don't follow me. If right, I shall have added my mite to the sum total of the knowledge gained thus far in our pursuit.

And these winter months are just the time to do lots of hard thinking along apicultural lines.

Borodino, N. Y.

[Mr. Doolittle has one condition that most of us do not and can not have; and that is, absolute control of the temperature of his bee-cellar; for he says he has a variation of only half a degree, notwithstanding the *outside* temperature varied from away below zero to a warm atmosphere and green grass. Absolutely uniform temperature like this was impossible in our machine-shop cellar, which varied all the way from 38 up to 55 and even 60.

But Mr. Doolittle is laboring under a serious misapprehension if he supposes our cellared bees consumed 20 lbs. of honey per colony. The consumption of honey was between 5 and 8 lbs., notwithstanding the fact that heavy machinery was rumbling over them during the day. The bees did not have more than 10 or 12 lbs. per colony to start with; yet very many of them had half that amount of stores left, and came out in the spring in good condition.

If Mr. Doolittle were to have a variable temperature I am strongly of the opinion that he would *have* to have copious ventilation at night. When I suggested more ventilation for his cellar I was not aware that he was able to keep so exactly an ideal temperature—45 Fahrenheit. It is not to be supposed that he would get any better results than he now does, if his consumption is only about 6 lbs., and the bees keep perfectly quiet.

Our bees in the machine-shop were perfectly quiet so long as they had ventilation at night, no matter if the temperature did not go up as high as 55 Fahr. They would lie in dormant clusters, thus contracting according to the temperature of the room.

The great mass of bee-keepers do not have conditions that are ideal; and I therefore think my advice to give plenty of ventilation, especially where the temperature is variable, would mean better wintering—much better—than if that same cellar were shut up tight. For example, the bees at our outyard cellar were shut up practically tight all winter, and yet they had dysentery, and wintered badly.

Then, too, it is important to give flights toward spring—one or two—with just such cellars.

I am not able to speak in regard to the conditions that exist in the case of Mr. Bingham and his cellar, and he will doubtless speak for himself.

With regard to the temperature of the earth, my own experiments about 20 years ago, of letting a thermometer down into various wells all over Medina, the thermometer being drawn up in a bucket of water, showed that the temperature of the water 10 or 15 feet below the surface of the ground was about 45. Assuming that the air from the surface would warm up the water to some extent, it was reasonable to conclude

that a temperature of 42 Fahr. would be about the temperature that prevails in Medina soil.

Mr. Doolittle suggests that we shut our cellars up a week and note results. We did do that repeatedly last winter and the winter before; but with a rising temperature during the day, due, no doubt, to the warm steam-heated room above, the bees would get uneasy.

Referring to my statement on page 375, I would say that I referred only to the conditions that exist in our cellar with its variable temperature.—Ed.]

### ALFALFA.

#### Full-grown Hay Better for Horses than the same Amount of Young Feed.

BY L. B. BELL.

I wish my mind were as free from fear of the "bogy" of early alfalfa-cutting as our Colorado friend Gill's seems to be from his confidential letter in Nov. 1st GLEANINGS. After reading his article I thought we had all "borrowed" considerable trouble over the matter, and it was with a light heart that I pitched into an old rancher here (a well-posted Yankee, growing alfalfa as a business). I managed to retreat in fairly good order, but with the impression on my mind that one of us had been misinformed on this subject, and I longed for a reserve force of experiment-station reports to fall back upon for reinforcements. His statements were in effect that nearly every experiment station in the alfalfa-growing region had reported that alfalfa contains the greatest amount of "protein" when only one-tenth in bloom. Now, one thing is certain with me—that this rule was pretty generally followed this year in this locality, with the result that I secured only one-fourth of a honey crop.

I wish this question could be settled conclusively. There is too much difference of opinion on the matter. I find the difference even among alfalfa-growers, and the arguments pro and con lead me to believe that the question can be settled, and settled in favor of the bee-men, especially in localities where the hay is used largely for feeding horses.

I know this much about the matter: You couldn't run fast enough to give a livery-stable man a load of alfalfa to feed horses for fast driving. Why? Because the quality varies so on account of the difference in the time of cutting that they have formed a prejudice against the hay, and will not feed it if they can get any thing else. Horses fed on alfalfa cut before the first seed begins to form are not fit for hard driving; and work horses fed on alfalfa a tenth in bloom are soft and washy, with no endurance or strength. It is entirely too laxative for horse feed.

These I know to be facts in which practical men will bear me out; so you can save

them to put in your digest on this subject, which I hope you may see fit to prepare, or have prepared by some one competent to do so, as soon as we can get it settled on sufficiently solid ground, and know just what we are talking about. Some argue that horses will not eat all their hay when the alfalfa is over-ripe, as the stems are too tough and woody; but they have in a large measure jumped at a conclusion, and a wrong one. If I am not mistaken, a government ration of hay is 18 lbs. per day; but if the hay is cut before maturity, a horse will eat 30 lbs. or more, and still be hungry, because of the lack of nutrition in the hay; while a horse fed 25 or even 18 lbs. of mature hay will probably leave some of it, not because it's woody and tough, but because he has been sufficiently nourished; and a horseman who understands his business will not hesitate long on which one to take out for a long drive or hard long pull.

What Mr. Gill says in regard to the value of alfalfa cut in full bloom coincides with my experience and with that of most practical men who reason things out; but I suspect that that "fountain of wisdom," the experiment station, sometimes puts out opinions evolved by a process of experimenting so exhaustive that there has been no time nor strength left for thinking.

I have written to our experiment station to find out what they think about it; and I would suggest that the editor of GLEANINGS also write to each of the several stations in the alfalfa-growing region, and get such data as may have been issued, or any revision of opinion which they may make.

I doubt the wisdom of saying much of the bee-men's interests in the circular, as many men (I am sorry to say) are just selfish enough to look with distrust upon any advice coming from such source, and would rather lose something themselves than have any of their fellow-men get something off their land for nothing.

There would be several economic points to be considered, such as the extra amount of irrigating required to make up the weight in the crop; also the extra running over the ground with mower, rake, etc.

Camp Verde, Ariz.

[In this issue, in the editorial department, I have already made liberal extracts from the Kansas Experiment Station regarding this matter of the time when to cut alfalfa. I am now of the opinion that friend Gill did not know, when he wrote in GLEANINGS for Nov. 1, that there was such a strong tendency on the part of the ranchers to cut alfalfa early. But the tide may turn the other way when the buyers of early-cut hay discover that it is too laxative for horses, and that it is not suitable for horse feed as compared with other hays, or alfalfa cut older. Our columns are open to the full and free discussion of this matter; and let us know in just what predicament or position the bee-keepers in the alfalfa region are already placed or will be placed in the future.—Ed.]

## FORMING SECTION-BOX NUCLEI.

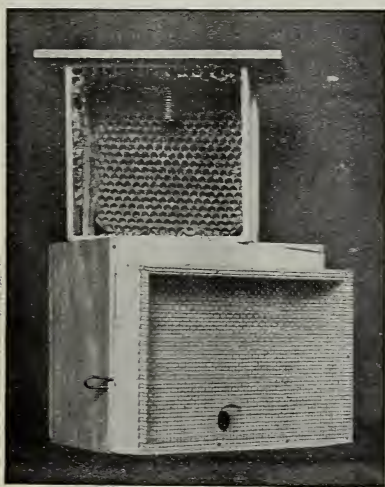
How Provision may be Made for Mating from Forty to Fifty Queens by the Bees of One Strong Colony, as Practiced by "Swarthmore."

BY SWARTHMORE.

It does not require more than a teacupful of bees to surround a young queen with the necessary environments for maternity-flight—the only question being how best to harness such a small force in order to get the best results with as little time and labor as possible.

We must bear in mind that it can not be expected that very small nuclei will maintain themselves without assistance; therefore the hives should be of such construction as to be quite easily handled, either singly or in numbers—wholesale mating being the idea—in lots of twelve or twenty-five at a time.

Details of the fertilizing-box I am now using, and the one that has been so successful in the hands of Mr. Fr. Greiner and



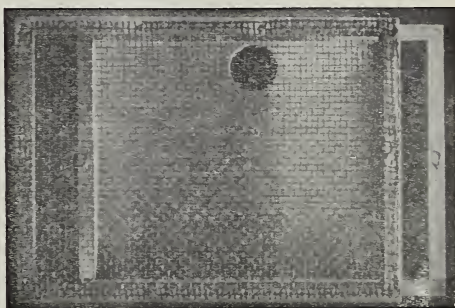
SWARTHMORE MATING-BOX FOR SETTING OUT.

others the past season (see GLEANINGS for Sept. 1, 1902, pages 726 to 727), is as follows: A simple box for holding two  $4\frac{1}{4} \times 4\frac{1}{4}$  section-box frames, having a half-inch flight-hole on one side, as shown, covered with the screen in the photograph.

The frames are attached to the lid or roof board (which may or may not be divided) by means of staples driven part way into the wood, and then bent at right angles over the frame, which holds the same securely, yet permits ready removal by a simple twisting motion. Standard  $1\frac{1}{8} \times 4\frac{1}{4} \times 4\frac{1}{4}$  sections, split in the middle, are used for frames. When the frames are dropped into place in the box, the top opening will be entirely closed, and the little frames will have a bee-space from the bottom and sides of the little hive.

A  $\frac{3}{4}$ -inch-hole, coming directly between the two frames, is made in each lid for the purpose of inserting queen-cells or feeders. Foundation is fixed into these small frames, and eight of them are then fitted into a Langstroth frame, and several such are hung in large hives to be drawn out and supplied with honey; after which they are removed as wanted, and fixed two frames in each box, as shown in the photograph above.

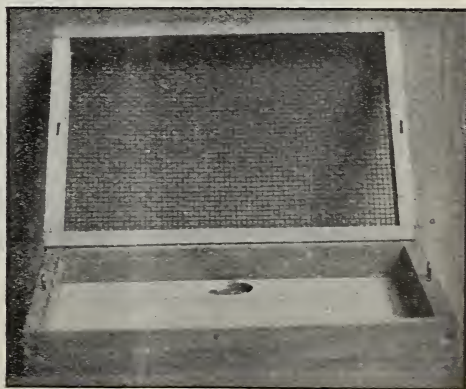
It is always better to have some brood in the combs; but brood is not imperative when



SWARTHMORE CONFINING-SCREEN FOR FORMING NUCLEI.

making up isolated nuclei. Of course there is some chance of failure without brood, but of such small consequence that the loss is hardly noticeable in the end. However, stocks of brood, honey, and pollen may be held always in reserve by keeping a nucleus colony of from three to five frames constantly upon small combs fitted into Langstroth frames.

Supply twelve mating-boxes at a time, each with two nicely drawn combs well supplied with honey; then run into each box a teacupful of bees in the following manner:



Twelve confining-screens (shown attached to a box in the first photograph) of peculiar construction are to be at hand.

Two rims are made, of half-inch strips,  $4\frac{1}{4} \times 5\frac{1}{2}$ . One rim is covered with wire cloth, while the other is covered with a thin board. A  $\frac{3}{4}$ -inch hole is cut in the center of the thin boards, from side to side, but close to the lower rail of the rim. Small staples driven into the board-covered half, one at each end, and then forced into the screen-covered half, serve to hold the parts together. If for any reason it is necessary to cast the bees from the confining-screen, as in strengthening nuclei on their stands, simply separate the parts, jar out the bees, and replace. Staples serve very well for holding the screens in place, although some prefer wire nails driven in diagonally at either end. If for any reason it is desired to confine bees in the screens, a Swarthmore shell will just fit the escape-hole. These screens are very useful for transporting bees for strengthening purposes.

Nearly every bee-keeper nowadays starts his cells by taking up a few bees in a screen-covered or ventilated hive-body; and, after the cups are well under way, said bees are returned to the hive from which they were borrowed, the cups being given to full colonies to be completed.

Instead of returning such bees to the loaning colony they may be used in forming small nuclei by the use of the screens just explained; and at the height of the season the loss will not be felt by any strong colony.

Place the escape-hole toward the light, and darken all other openings. Now place a confining-screen above the escape-hole; and as you draw the cork, slide the screen downward and over the hole, in alignment with the hole, into the hive-body. The bees will immediately pour out of the hive-body into the confining-screen. It's like drawing honey from the extractor. Let them fill the screen full, then slide it up, and at once cork the hole. Place the thumb over the hole in the confining-screen (keeping the wire toward the light), and at once clap the screenful on to the point of a nucleus-box, as shown in the first photograph; attach it there by the use of staples, as plainly shown. Now bring on another screen and another, until all the bees have been drawn from the hive-body. If any are left they can be returned to the hive from which they were borrowed, in the usual way.

After all the boxes have been supplied, drop a just-hatched virgin into each box, or supply a hatching cell through the hole in the lid, and at evening set out the boxes and remove the confining-screens.

In the photograph (see next page), the mating-boxes are set out singly, but they may be grouped in twos and fours as illustrated in GLEANINGS by Mr. Greiner. Each is provided with a little stand and covered with a board. Feeding is done by means of vials covered with muslin or



SWARTHMORE FORMING NUCLEI WITH HIS CONFINING-SCREENS.

At one end of your screen-covered hive-body bore a  $\frac{3}{4}$ -inch hole and provide a cork which can be quickly drawn and replaced in said hole at will. Remove the started cups at about 10 o'clock in the forenoon, and by noon (or before) the bees will be wild to escape from their confinement in the screen-covered hive-body;

screw-tops, or candy forced into a cage inverted on top of each hive.

Remove all queens as soon as mated, and in three days drop in another just-hatched virgin or a ripe cell.

If tes'ing is desired, cover the flight-hole with a bit of zinc to prevent the queen from leaving the box after fertilization.

When any of the nuclei show signs of weakness, take the queen and brush the bees into the next box three days later, and on the next round restock the empty boxes. It is just as easy to run bees into screens in this manner as to return them to the hive; therefore any losses from any cause may be quickly and cheaply made up. With a little experience, however, any bee-keeper can run his boxes for months without loss, and at a minimum of expense.

queens that a larger nucleus with more bees and standard-size frames will do, and I believe he has in a measure succeeded, notwithstanding that there are many who say that the thing can't be done. If, as Mr. Greiner suggests, one can form, from one strong colony, fifty mating nuclei instead of five, and if from that fifty a large part of the queens can be fertilized, one can hardly afford to stand on the outside and say "the thing can't be done." But I



THREE HUNDRED MATING-BOXES SET OUT.

If a handhold-like slot is cut directly over the escape-hole, on the inside of the hive-body, covered with a strip of drone-excluding zinc, any undesirable drones will be sifted out as the bees pass from the hive-body into the confining-screens.

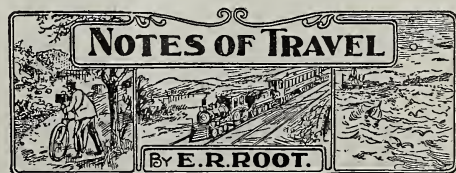
[Complaint has been made that the other plan, offered by Swarthmore some time ago, of mating queens in the small single-comb boxes, was not a success. Although he says he made it work yet it was evident that it would be a failure in the hands of the average bee-keeper. The plan that he now offers is an improvement in that the mating boxes are larger, having two combs.

Mr. Henry Alley, the veteran queen-breeder, has for years used small nuclei of this kind, but having three or more frames. Whether more than two are necessary for the average bee-keeper I can not say; but certain it is, Friedmann Greiner, one whom I regard as exceedingly careful and conservative in his statements, says he has made the plan above outlined work to his entire satisfaction, and if he has I am sure other bee-keepers equally expert can; and no one should undertake to rear queens in a wholesale way, either for himself or for the market, unless he is fairly expert.

The problem that Swarthmore has been working at, is to make a handful of bees, as it were, do the same work in mating of

would by no means advise one to try it on a large scale at first. Let him try a dozen boxes properly equipped, as did Mr. Greiner, and if these work try more. Swarthmore appears from the photo to have something like one hundred, or did have last summer in successful operation.

It should, perhaps, be stated that these small nuclei *might* (I don't know) not give satisfactory results after the honey or swarming season. Robbers might make short work of them.—ED.]



WATSON'S RANCH IN NEBRASKA; SOME OTHER INTERESTING FEATURES ABOUT THAT GREAT FARM; A POSSIBLE BEE-RANGE OF 5000 ACRES OF ALFALFA; SOME OF WATSON'S SAYINGS.

In our last issue I was telling something about harvesting the alfalfa on this great ranch. I have since learned that the crop of alfalfa put up this year on the ranch was 10,000 tons. Just think of it! Ten tons

of hay in this eastern country to the farm is called big; but when we multiply that by *one thousand* we can form some idea of the immensity of the crop. As if that were

now, as he explained, there is good money in them.

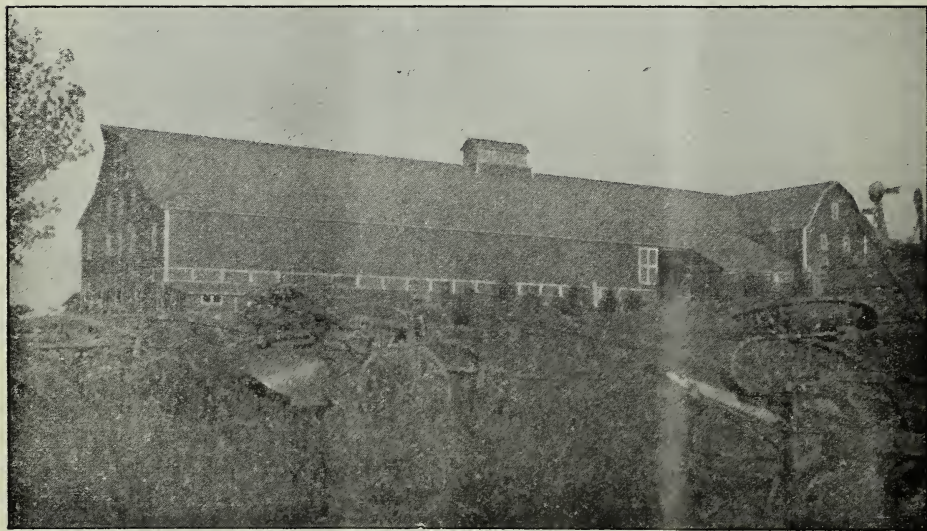
Another one of his hobbies was shipping cattle from Mexico to his ranch during win-



THE RANCH CARRIAGE—ADMIRING A FINE STAND OF CORN. MR. WATSON AT THE RIGHT.

not enough, more land is to be seeded, for alfalfa is a paying crop when meat and pork are so high; and, by the by, one of Mr. Watson's hobbies is raising hogs; and just

ter, and then turning them loose on that fine aftermath of alfalfa, after the haying season is over, to fatten. The alfalfa during winter furnishes good pasture for a



THE LARGEST STOCK AND DAIRY BARN IN THE WORLD (WATSON'S RANCH).

good part of the winter; and with the help of those immense stacks of alfalfa right out in the field he could make those cattle sleek and fat, ready for delivery in the Chicago markets. The plan had not fully materialized yet; but why shouldn't it work, and he and the other fellow make good money? he asked, and why shouldn't they?

Now having looked over the alfalfa-field let us go up to the ranch itself, or, rather, to the center of it, where is located the largest dairy barn in the world, probably. It is 317 feet long by 96 feet wide, having 34-foot posts. It has an immense silo in connection, and through the center of it run tracks for carrying the feed for the cattle without any pitching or handling from stall to stall. It will accommodate 350 cows without tying. There is another shed at right angles to it, 568 by 48 feet. This will hold 600 tons of hay; and cattle, how many it will stable I do not know. In connection with the ranch there is a corn-crib that holds more than 10,000 bushels of corn; a grain-bin 240 by 16. On the ranch are 57 dwelling-houses in which live the workmen and their families. In one part of the ranch up on the hills where the land has hitherto been perfectly worthless for any purpose whatever, Mr. Watson has thrifty-growing orchards. The wise heads in the vicinity said it would be no use to set out trees on those barren wastes — "wouldn't nothing grow there." But, "allee samee," he has shown that fruit can be grown there successfully. His 5000 cherry, 3000 plum, and 7000 peach trees all testify to his remarkable mastery over the climate and the soil. What he has done in showing the possibilities in this semi-arid country without irrigation has been worth millions of dollars to Nebraska. The great Union Pacific Railroad recognizes his work, and seems disposed to offer him every facility for the carrying-out of his plans.

A little the other side of the dairy barn was an immense creamery, and Watson's butter is known all over that part of the country. An expert has this in charge; and what Mr. Watson does not know about the business, this man does.

In connection with the other departments is an immense poultry establishment. Mr. Watson has called in an expert poultry-grower, who had, I believe, at that time, 1000 chickens, all of them growing thriftily, and without disease. It is the intention of Mr. Watson, I believe, to have ultimately 10,000 chickens on the ranch at a time. They are housed and taken care of in a modern way in small flocks in a place.

The bee business of the ranch was on a comparatively small scale, but Mr. Watson proposed with the advice and help of Mr. Wilson to take it up extensively. "Just think," he said, "of five thousand acres of alfalfa all in bloom at once, and bees enough to get the honey, and the bee-range all your own! Don't you think I could get some honey?" As he said this his eyes fairly gleamed with enthusiasm. Said he, "Mr.

Wilson and I will make some money, eh?" And that reminds me that Mr. Watson goes into partnership with all the heads of his departments giving them in addition to their salary a share in the crops, and, as he said, "What is *my* business is theirs also. I don't have to nag 'em to make 'em hustle, for they hustle for themselves, and that's the way I do business with my good men."

I believe this is the largest ranch in the world, under one man. There are other ranches controlled by stock companies that are much larger. Indeed, I believe there is one alfalfa-ranch within about 40 miles of Denver — well, it seemed as if I was about an hour in riding through it, and that too in a Pullman car at full speed. But here is a genius at Kearney, Neb., who has been able thus far to spread himself over several lines of industry, and who, through his great faith in himself and in the soil, has made every one of these lines pan out well. The land in the vicinity had come up in value since Mr. Watson has demonstrated what it can do; and he is as anxious that every one else in his locality should do as well as he; for he takes pride in exploiting new schemes and showing the world how it can make a living off the soil.

Perhaps I can give the reason of some of Mr. Watson's success by giving a few of his sayings; for as I talked with him he uttered great truths every now and then; and after I got on the train I jotted down as many as I could remember. Here are a few of them:

"I shall be dead a long time, and I believe in making the most of opportunities while I live."

"There are some men who never move fast enough to keep out of their own dust."

This sentiment bubbled over while we were driving with the wind through a cloud of dust, the dust keeping pace with us. As he hurried up the horses he went on to tell that a man to suit him was one who could keep out of his own dust, who could make things move and get good results.

As we drove past some ground that had not been plowed up, covered with weeds (and there are weeds that grow on that great ranch simply because there are not men enough there to take care of them), Mr. Watson said: "I believe in the usefulness of even weeds, because they make us work." Then he went on to explain that a certain kind of weeds would loosen the soil when plowed under, and make an excellent fertilizer. He did not believe the great Creator put all these so-called nuisances on earth without some purpose. It was the business of every one of us, he thought, to find out what that purpose is, and utilize it by turning the weeds into money.

While we were talking about whether the ranchmen would in time cut alfalfa just as it is in bloom, Mr. Watson gave it as his opinion that we need never worry about that. Alfalfa grows so thriftily that we can not keep up with it. Nine times out of ten

it will be cut too late rather than too early, no matter what is the belief of the ranchman himself.

A few more sayings are worthy of record: "I believe in the gospel of enthusiasm. I believe in saving steps by having all the paths on the ranch in a beeline."

By standing at the ranch-house we could easily see the paths or roads running out from a central point like the spokes of a great wheel.

After commending one of his men for some good work he did, he said, "I believe in expressing my appreciation of my men when they do good work, when," said he, with a twinkle in his eye, "it will not spoil them. There are some men whom I can not possibly praise without making them good for nothing; and there are others to whom honest praise is a wonderful stimulant to do better."

While Mr. Watson may be somewhat visionary and utopian in his views of things, and while it is true his plans and business ventures have not always been successful, it is a great treat to be in his presence, to feel the electricity of his energy and enthusiasm.

Needing some more data for this write-up than what I possessed I wrote to Mr. Wilson making further inquiry. After furnishing me the desired information he gave me a pen picture of Mr. Watson and the ranch that is worth reproducing and here it is:

"The farm is remarkable because it is solving some of the greatest problems of agriculture of the great West, in that portion where the rainfall is light and drouths are severe and frequent. In his schemes and plans he is bold and confident; his optimism is unbounded. It is surprising how he calmly reviews discouragements—not dwelling long on them, for his fertile mind demands action.

"Probably no other man in the West is such a master of the science of soil culture and tillage as Mr. Watson. As for preparing a cherry orchard, he just put it to alfalfa, and after two years this was disked until in a fine condition of loam and alfalfa, and then prepared for the young trees. It is remarkable how soil of this preparation will hold moisture and afford plant food. Probably one of the most valuable things he has discovered with alfalfa is that by seeding it thinly and sowing bluegrass between, cows can feed on it with perfect safety, with no danger from bloat."

#### A. I. ROOT OFF FOR CUBA.

A. I. ROOT left for Cuba the day after Christmas, going by way of Florida, where he stopped for two days. Here he fell in with Jacob Alpaugh, a fine mechanic, and one of Canada's best bee-keepers. Mr. Alpaugh was also on his way to Cuba, and he and A. I. R. go on together. That shipment of bees, from last reports, was piling in the honey, and Mr. Root had at attack of old-fashioned bee-fever. He said he felt as if he must go down and "help the boys extract." We shall hear more from him.



#### PEAR-JUICE FOR WINTER FEED.

Is it safe to leave pear juice with the pomace outdoors so the bees can go to it as they please, now, or will it hurt them?

My neighbor has bushels of pears going to waste. The juice is much sweeter than maple sap.

C. S. INGALS.

Morenci, Mich., Nov. 2.

[I certainly would not let the bees have such juice if I could avoid it. If they have gathered much of it and put it in their hives, you will be apt to have severe winter losses before spring, or at least bad cases of dysentery, with colonies greatly weakened when the bees are able to fly at the return of warm weather. If you are sure you have got pear-juice in your combs, better extract it, or, better still, give the bees combs of good stores. The pear-juice combs will come in good play next spring for stimulative feeding.—ED.]

#### WINTER HIVES, AND HOW PACKED.

1. Do the chaff hives have a movable bottom-board?

2. Is there any packing at the bottom or only on the sides?

3. Do you think these hives are warm enough for a temperature which sometimes for weeks gets to be 60 below zero? At present my hives are packed in an outer box something like the Cowan double-walled hive with 4 inches of packing at the bottom, 7 inches on sides, and 2 supers with a burlap over frames, all filled solid to the top. I hope this will be warm enough, but it is too expensive for a large apiary. My intention is to increase to about 50 colonies. At present I have 7.

Can you tell me whether it would be good to make Dadant hives square in order to hold about 13 frames instead of 10 as now?

Dorchester, Wis., Nov. 8. WM. UECK.

[1. No.

2. As a rule, the regular chaff hive is packed all around on the sides, ends, bottom, and top, with packing material of some sort, but not necessarily chaff. Bottom packing is not really essential.

3. In your locality I would not advise the ordinary chaff hive, because it would not be warm enough. Hives packed as you describe would do very well, perhaps; but a better way would be a good dry warm cellar, with facilities for ventilating the same at night during the winter. I would not advise making the Dadant hive square. It would be too big. This would be a case of "getting too much of a good thing."—ED.]

# A SUGGESTION FOR A BEE-FEEDER; HOW TO PUT STARTERS IN HOME-MADE BROOD-FRAMES.

I have never seen a feeder that was just what I thought it ought to be. I should like to have one that fastens on to the back end of the hive, and feeding through an auger-hole. Then it would not be in the way in examining bees, and could remain in place all the time. When it needs refilling, raise a tin cover and pour the syrup through a wire cloth into the pan.

I will give my way of putting starters in brood-frames, as I never saw it in print. Take a strip of wood  $\frac{1}{2}$  inch thick by 1 inch wide, and long enough to go easily inside of the frame under the top-bar. Now place one edge of this strip to the center of the bottom side of the top-bar, and drive two tacks in the top side of the strip at the edge of the top-bar so that there will be no more trouble in getting the strip to the right place. Now melt some wax, and make some strong soapsuds to wet thoroughly the edge of the strip before placing in position in the frame. Turn the frame bottom upward, and let the bottom-bar lie across the arm, holding the end next to you a little higher than the other. After placing the starter in the frame, pour the wax over the end next to you, and let it run to the other end. With a little practice one can put starters in that answer every requirement.

Cave City, Ky., Nov. 6. A. P. YOUNG.

[Bee-feeders such as you describe have been made, but they have never become very popular. Besides necessitating the mutilation of the hive, they require an expensive feeder. A cheap simple feeder, one that can be used at the entrance or inside of the hive, is better than a complicated trap on the outside. Your method of fastening foundation will do very well when the bottom side of the top-bar is not grooved.—ED.]

## BEE PARALYSIS.

I have sent you a few dead bees along with this letter, to see if you can give me any information as to the cause of their death. This colony has a two-year-old queen, and was my best one this spring, until the trouble began, six weeks ago. They die faster than the bees can carry them off, as there are many on the bottom-board. I have examined the comb, and find no sign of foul brood. They have the appearance of being swollen. I have 30 hives and this is the only one that is troubled.

Rockland, Mass., Nov. 11. F. AMES.

[The sample of dead bees you send, and the symptoms you describe, point to bee paralysis. In the Northern States the disease rarely if ever does any great damage. I think I would advise, however, removing the queen and substituting another. If the disease reappears again next season on those combs, and in those same hives, burn the combs and scorch out the inside of the hive. Such procedure is hardly ever nec-

essary, and is resorted to only in extreme cases.—ED.]

## FOUL BROOD IN MICHIGAN.

Is there any cure for foul brood, or any law in regard to people keeping infected bees? There are two apiaries near me that have foul brood. B. M. WING.

Sheridan, Mich., Nov. 11.

[Most certainly there is a cure—a law, and an inspector to see that such law is carried into effect. I commend your case to Foul-brood Inspector W. Z. Hutchinson, Flint, Mich.—ED.]

## ITALIAN BEES IN PLACE OF ROBBER-TRAPS.

There is much being written just now on robber-traps. Much valuable reading-space is taken up illustrating them, etc. The best robber-trap I have ever used or seen is a good colony of Italian bees. There is more profit in one colony of Italians than in all the bee-traps ever invented. If a colony becomes queenless, and is being robbed, place a sack over the hive and pour water on the sack. The water will run down on to the entrance, which makes the robbers soon give up the undertaking.

C. E. WOODWARD.

Matanzas, Cuba, Oct. 10.

[Much of what you say is true, and I would have pure Italians if for no other reason. But Italian bees, if good workers, will rob fearfully if the bee-keeper is in any way careless. The best preventive of robbing is skill and extreme care, coupled with a knowledge of the general robbing propensities of bees.—ED.]

Do queens stop laying eggs at this time of the year or sooner? I opened one of my hives to-day, and couldn't see an egg or larva, all the brood being capped. Let me know if this happens each year, or whether it shows that the hive has no queen.

E. H. KILIAN.

Mascoutah, Ill., Oct. 14.

[Queens almost invariably stop laying, in normal colonies, in the fall of the year. The fact that you saw no eggs or larvæ would not be an indication that the queen was absent; but, on the contrary, that the conditions were normal.—ED.]

Do you know if any one has ever tried feeding sugar-cane juice to bees in order to have them complete sections? Do you think it would be successful after the honey-flow has ceased? G. W. WEINGART.

Picayune, Miss., Oct. 13.

[Cane-sugar juice can be fed to bees, and they would make a sort of syrup honey of it; but under no circumstances would we think of using it to fill out sections, unless the customer who bought such sections was told plainly that it was cane-sugar honey. The general experience is, when the public is told that a section is filled with sugar syrup it will have none of it.—ED.]



So I prophesied as he commanded me, and the breath came into them, and they lived, and stood up upon their feet, an exceeding great army.—EZE. 37: 10.

A few days ago as I was passing along the streets of Medina I met an old neighbor who has been quite active all his life in temperance work, and of late years especially in the Anti-saloon League work. He has had quite a spell of sickness, and was just able to be out in the sunshine for a little airing. Thinking to cheer him up I began to tell him of the temperance victories at the present time here in Ohio. He is of a peculiar temperament, and given to odd and startling speeches. His reply to my remarks, as nearly as I can remember, was something like this:

"Why, Mr. Root, the people have got so tired of being dead so long that they can not stand it a minute longer, and so they are all waking up here and over there, and all around," sweeping with his hand the whole face of the horizon. Of course, I had to smile at the thought that dead folks sometimes get "tired" of being dead; and as I pondered, walking along, I smiled out loud, and since then I have several times had a good big laugh at the thought of dead folks getting tired of being dead. Now, please do not think me irreverent, dear friends. While I laughed at Bro. Shaw's oddity I thanked God again and again that some of the dead folks we have all round us are at length tired of being dead, and that Mr. Shaw's remarks are true. The whole wide world is waking up. In our *Homes* for Sept. 15 I quoted from Bro. Reed's sermon where he said there were dead people all through the world walking about—people who are spiritually dead—people to whom the Holy Spirit has ceased to speak; those who have no care or anxiety for the welfare of humanity, especially *youthful* humanity.

Now, if some of you still insist that the world is just as dead as it has been all along, and is going to remain dead—in fact, *prefers* to remain dead—I want to give you some facts. On page 951, Nov. 15, I copied from one of the Cleveland papers in regard to the movement on foot to retire the old police officers, for they absolutely *would not* enforce the laws against saloons. If you have read the daily papers you probably know that from that time forward a strict enforcement of law commenced in Cleveland. One of the Toledo papers, in commenting on the matter, said Cleveland now-a-days was as dry on Sunday as a "covered bridge." The saloonists were surprised and astonished; 47 of them were arrested and fined, Nov. 30. But even this did not seem to arouse them to the fact that the police, for at least once in the world, "meant business." The next Sunday a lot

more were arrested. One of the liquor papers, in wailing about the way in which old laws that everybody considered obsolete were enforced, "gave themselves away" by declaring that they lost the sale of 2000 barrels of beer in just one Sunday. Some of you say I mean 200 instead of 2000. Nothing of the sort. It was 2000 *barrels*. Now, mind you, I am talking about *barrels* and not *kegs*. The brewers had been in the habit of disposing of about 2000 barrels of beer every Sunday in Cleveland; and the arrest for intoxication on God's holy day dropped off at once. Relative to this I make the following extract from an address by Hon. Frank Arter, of Cleveland, entitled "The Saloon and the Christian Sabbath."

With a recent closing of the saloons on the Sabbath, there has been a decrease of over seventy-five per cent in the arrests made for drunkenness on that day, and with no murders, no brawls, and with a possibility of decent people of the city walking the streets without fear of insult. On the first Sunday the saloons were closed, there was less beer by 2000 barrels sold.

On page 950, Nov. 15, I told you what five kegs of beer did among a gang of Italian railroad men. Well, the beer made here in Ohio is exactly as bad as that made in Northern Michigan. Some of you may say, "Oh! well, this may not last long. The police of Cleveland have taken on a spasm of law enforcement; and when you get down to it you will find, Bro. Root, it is all for political effect in some way or other. You see if it holds out."

God bless you, my dear friend, of *course* it will hold out if you and I *make* it hold out. The great Father above did not place us on this green earth to go about as living corpses; but he meant us to be *live men*, and to insist on the enforcement of our laws.

You may say these "spasms" of temperance work are confined mostly to Ohio; that the rest of the United States and even the rest of the world is going on in about the same old way. Well, if this were true I should thank God that the people of Ohio are waking up, and, in the language of our text, "standing upon their feet an exceeding great army;" for it has been many times said that Ohio is not only central in a geographical sense but that it is getting to be central in an educational and moral sense. Thank God *again*, if this is true. I am proud to think that I was born in Ohio, and at a time when I could help just a little in the temperance work. Coming to life is contagious. Michigan is getting the fever; so is New York; and Indiana, and Kentucky to some extent (in spite of her celebrated whisky); and Virginia and Pennsylvania are both beginning to turn over in bed and give signs of restlessness if nothing more. May God be praised, if it be indeed true, that they too are getting "tired" of being dead so long.

But just now I want to tell you the good news that is coming from Ohio. In our last issue I told you of our victory in Collinwood. In that place 36 saloons are now closed up. Collinwood is one of the eastern suburbs of Cleveland. Lakewood, a suburb on the

western side of the city, has also come out with a tremendous victory, and everybody is rejoicing. Is it going to damage business? The Cleveland *Plain Dealer* of Dec. 7 says, "Real estate is active in consequence." It further says:

Messrs. Matthews & Gilbert are making a sale of their lots, selling them at an average of fifty a week for \$240 each. The saloons in beautiful Lakewood, Cleveland's smokeless section, will be abandoned Dec. 22, and this fact alone establishes Lakewood as the only suburb except East Cleveland that will be devoted strictly to residence purposes.

While I write, other suburban towns around Cleveland, Bedford, Nottingham, Glenville, and others, are also commencing vigorous fights; and with God's help they will beat the enemies of righteousness. I will tell you why. The saloon-keepers are not ready to wind up business. They are making preparations to move (or have moved) just over the line, where they won't be "worried." Of course, the *people* object to more saloons when they are all satisfied they have too many already; and the saloon-keepers already on the ground *also* object. Just here let me say that some of the other temperance organizations have complained that the Anti-saloon League method is like driving a mad dog into another county. If this is true, dear friends, it *is* bad to drive a mad dog or a saloon-keeper over on to your neighbor's premises. But, bless your heart, the adjoining county must "get on a move" in a like manner. They must come to *life*, stand up on their feet, and chase these mad dogs *clear off the face of the earth*. Let us get them on the run, and worry them until, in sheer desperation, they go down into the sea as did the swine in that story in holy writ.

At the Anti-saloon Congress Supt. Baker told us of 91 towns in Ohio that had gone dry under the Beal law. Yesterday's daily said it is now 95; and while I write I think there must be a full hundred. Do you say the blind pigs and speakeasies are selling just as much liquor as ever in the dry towns? Why, my dear brother, you have not yet got over being dead. At Columbiana, O., Wm. Ryan was fined \$100 and costs just because he sold a temperance drink—at least he claimed it was—that he called "malt mead," containing less than two per cent of alcohol. Now, they did not even succeed in proving that the malt mead was beyond the limit of the law, and was nothing more than a temperance drink; but they convicted him *solely* on the fact that he had taken out a federal license, thereby *acknowledging* that he was engaged in selling intoxicating drinks; and that was the third penalty of the kind imposed under that law in Columbiana County. In the past week two places here in Medina that claimed they sold only "soft drinks" have been fined nearly \$400 each just because the records show that they had in like manner taken out a United States license for selling intoxicating drinks. Truly the way of the transgressor of temperance laws is getting to be full of pitfalls. In getting good men into office, Supt. Baker

said at the congress, "Every man who connives at or favors the saloon must go—go down and out. We care not what political party has boosted him in, we propose to boost him out. If a man is so wet that he must wear gum boots, we propose to present him a canoe to row out." Rev. C. L. Work, of Granville, O., said, "I find that 73 men who used to sit in legislative halls have now through the League been relegated to rear seats at home, where they will stay until they show fruit meet for repentance."

We are frequently told that the League is all right for *small* towns but that we can do nothing with the cities. Xenia has a population of 9000; but their 33 saloons went out like a snuffed candle. Cleveland has 2000 saloons now; but the suburban towns all around it are getting in such splendid fighting trim that it looks just now as if the entire city might soon be in war. May God grant that this war shall commence soon. Let me digress a little.

One summer evening, just a few weeks ago, I took a trolley-line out of Cleveland westward. It is one of our new lines, and for a distance of something like ten miles brand-new saloons had been thickly located on both sides of that electric line. My impression at that time was, the business was a little overdone; but those fellows seemed to think that the "march of progress" demanded a beer-shop about every ten rods or less on every new electric railway. The further they got out into the country the more scattering were these saloons; but some enterprising fellow had started one at almost every point where the cars stop. I was wondering at the time whether it was possible that our Ohio people were going to let this thing continue. May God be praised that now these same Ohio people are coming to life, as Bro. Shaw had it, and they are coming to their senses. At Barnesville, O., they had a speakeasy that made them so much trouble people armed themselves and went at it with axes. Of course, they had the law on their side. Mayor White says he gave the order to the marshal as follows:

Go in the name of the law and with its power, and with hatchet and club, break down, bring out, and destroy the blind tiger, and let neither man, beast, nor devil stand in your way until your work is done thoroughly and completely.

Since then I have learned the saloon-keepers buried a lot of cans of dynamite where the marshal would be likely to strike them with his pick-ax. Here are the particulars:

BARNESVILLE, O., Dec. 8.—Marshal Charles Fogle and two deputies armed with axes started this morning to make the ninth raid on a "blind tiger" operated in the Herd building. They barely escaped exploding twenty-four railroad torpedoes loaded with dynamite, and so arranged that it would be easy for the officers to strike them with their axes.

The officers entered the building and found several men drinking in front of a barricade built of cross-ties. They noticed a strip of pasteboard across the barricade, and, tearing it off, found the concealed torpedoes. Had they struck the barricade with their axes their death would have followed. The inmates escaped, but much liquor was confiscated.

I feel that it would be an injustice to our colored friends to omit mention of the address of Prof. E. B. Curry, a colored man who is president of the Curry College, at Urbana, Ohio. He said:

"There is not a negro in the United States manufacturing beer. It is all made by some other fellow. (Applause.) I protest against the negro being invited to help pay the cost of a traffic from which he never has nor can receive the least benefit." (Applause.)

"The 140,000 negroes of Ohio say we appreciate the enormous cost of our emancipation; and now that the people are waging a still greater conflict against an evil still greater, we wish to have a hand in it. (Applause.) We abhor it, and ask the privilege to fight this den of immorality, now seeking to-day a grave for our prosperity."

"I ask you to tip your hat to the patriotism of the unbleached American. We are whitening within."

Before closing I wish to say something in regard to the army canteen. At one of the conventions of the Liquor League recently, in view of the tremendous headway the Anti-saloon League was making it was suggested that they, the whisky people, would have to get out a lot of literature, and do "missionary work" as Christian people do. They proposed to ransack the world to find leading divines, if possible, who will defend the saloon. They would make extracts from their writings, and spread these circulars broadcast. They also propose to hunt up army generals who favor the saloons. They are trying to gain their point by manipulating statistics, these statistics being in defense of the saloon and canteen, which by some hook or crook are to be got into the papers. They propose to buy the space if necessary; but they want it put in the reading-matter. Here is a sample of the newspaper statements that are sent out. Of course, we have some generals in the army who are dead men—that is, dead to the influences of the Holy Spirit. I clip the following from a recent daily; and please notice, friends, it is from *General Sanger*—do not forget the name—who is working for the reinstatement of the army canteen:

#### FAVORS THE CANTEEN.

To remedy these conditions the post exchange, at which light beer was sold, was exercising a wholesome influence, and General Sanger believes the exchange should be again made a possibility by removing all restrictions on the sale of beer and light wines.

Let me now give you some of his reasons for favoring the canteen; and, by the way, it is an excellent sample of the style of reasoning that comes from these army generals. The mothers of our land have, as you well know, protested with all their might against having their boys taught intemperate habits by the canteen. Here is what General Sanger says in regard to it:

To the fear, so often expressed by the opponents of the canteen system, that the sale of beer would initiate, or induce habits of intemperance, General Sanger shows from a careful census of the 342 companies of troops in the Philippine Islands that in 60 companies every enlisted man used vinous, malt, or spirituous liquors at date of enlistment: in 130 companies, between 90 and 100 per cent; in 58 companies, between 80 and 90 per cent; in 25 companies, between 70 and 80 per cent; in 20 companies, between 60 and 70 per cent. Unfortunately quite a number of men habitually drink to excess; and as this number will probably increase if the men are obliged, as now, to resort to native liquors in order to satisfy what to many of them is a

perfectly natural craving, the result will be most deplorable.

I know figures are sometimes dry reading; but it behooves us who love righteousness (and pay taxes) to note carefully these figures. In 60 companies, every enlisted man was a drinking man at the time of his enlistment. How is that for soldiers to defend our rights? Is it true that our national army is composed of a gang, the most of whom could not get a job on any of our leading railways, or, say, in any of our leading manufacturing establishments? God forbid. The daily that gave place to the above, said in an editorial on another page that it was a pity if the officers of the army of the *United States* could not have a law enforced to banish saloons, say for five miles from every army post. This indicates, without question, that the management of the daily paper did not sympathize with the report from General Sanger that they were induced to publish for some reason or other.

Another point, in our navy intoxicating liquors have been ruled out for several years past. How is it that we can not have total abstainers in the *army* as well as in the *navy*? If the above figures are true, is it not high time that we had a regular housecleaning, and that our drunken and drinking privates, and officers as well, were gotten out and some clean men with clear brains put in their stead? General Sanger suggests that the appetite for strong drink "is a perfectly natural craving." Several young boys have gone from Medina County—yes, they have enlisted and gone to the Philippines to fight our battles—boys who were clean and pure, and had no such natural craving. I think the greater part of them came back proof against this terribly dangerous ordeal of army life. It behooves every father and mother in the land to contradict these reports that the brewers are circulating through the papers and their circulars. This General Sanger and all the rest of his gang need to be spotted; and we each and all should write to our Representatives in Congress, and protest against this terrible state of affairs that the whisky men *themselves* are bringing to light. God is with us, and we shall prevail—that is, we are thoroughly *tired* of being "dead men," and are ready, as in the language of our text, to "stand up upon our feet, an exceeding great army."

---

#### SOME KIND WORDS FROM HOWARD H. RUSSELL, SUPERINTENDENT OF THE NATIONAL ANTI-SALOON LEAGUE.

Years ago, when the Anti-saloon League was just started here in Ohio, at one of our meetings at Lakeside I asked Mr. Russell to go with us for an hour or two out on the lake to a very pretty bathing-spot. He answered me something like this:

"Mr. Root, I should like to go with you, but I positively can not spare the time."

"Why, Bro. Russell, don't you ever take a vacation, for an hour or two, in July?"

I think I shall remember his reply as long as I live. It was something like this:

"Mr. Root, when the Anti-saloon League has succeeded in getting a law passed that can be enforced to break up the saloon business, then I am ready to take a vacation; and I am afraid I can never take one conscientiously until that time comes."

Well, during the past season we have for the first time in the history of the Anti-saloon League reached the point he mentioned. We have the Beal law, and it is being enforced, and the saloons are giving way before it in considerable numbers; therefore Bro. Russell has evidently decided he can conscientiously take a vacation, and I have his permission to put in print a letter he wrote me in September.

*My dear Friend:*—I desire to write to you once more to thank you again for your general interest in the work in which I am engaged, but more particularly to let you know how much good you are constantly doing me and my family through your department in GLEANINGS in which you give your attention to the interests of "Our Homes." I have scarcely missed reading a single copy of that part of the paper for many months past; and after reading them I generally send them home, and they are read in the family. I think I have been moved to dictate this letter just now because of the special interest aroused in my mind by your work in rebuilding the walls of the country church that had gone down. I sent the copy of the paper home, marked on the margin, "How A. I. R. spends his vacation."

How much more good could be done during the vacation season by Christian people, without really taxing themselves to any great extent, if they would only open their eyes and "see things to do," to use an expression Mr. Moody once used in a conversation with me. I spent my summer vacation upon a little farm in the town of Grafton, N. H. I found there was no church within six miles, and that a good many of the neighbors were not attending church anywhere. My dear old father, 80 years of age, is a *Rector emeritus* of an Episcopal church in Iowa. He and my dear mother spent the summer with us. He consented to read the Episcopal service every Sunday, and I assisted him so far as preaching was concerned. The children decorated the dining-room with roses, wild flowers, and branches of the evergreens, and we changed it into a beautiful church-room every Sunday morning, and it was filled as full as it would hold with our neighbors, who seemed delighted with the privilege of attending such a service, and expressed regret when the services were concluded, at the end of our vacation. One old lady said that she had not attended a service before for three years, and expressed her hearty appreciation of the privilege.

I did not expect to write at such length when I began my letter. You will be interested to know that I am giving considerable time just now to fostering the work here in New York State, which is yet in its beginnings, but which promises to be a strong and forceful organization in the future. I am looking after the work in other new States by correspondence, and expect to be able to visit several of them personally the coming year. I hear good tidings continually about the work in Ohio. I think you and my other comrades in The A. I. Root Co. have a right to be justly thankful that you have done so much to help forward the work in Ohio. I believe it is one of your best investments. Please tell Ernest or John that I am appreciating and reading the copies of GLEANINGS they are sending me regularly, and give all the members of the firm and family my assurances of continued affection and esteem. Yours very heartily,

New York, Sept. 11. HOWARD H. RUSSELL.

## Our Advertisers.

We have recently gone over our records of advertising for the past season and find that our advertisements placed in the poultry journals have given us as usual very good returns; this confirms our opinion that poultry-men find bee-keeping pays well with poultry.

Will not bee-keepers too learn that poultry added to bees is a paying investment? Look over the columns of GLEANINGS and send to each poultry-supply man for his book. They are all full of valuable information. Do it now, for this is the season to make poultry pay. When you write, do us the favor to mention GLEANINGS IN BEE CULTURE.

### MONTGOMERY WARD & CO.

Among our advertisers our friends may have noticed lately this big institution. I have been watching them for some time—in fact, I have been watching them for years as they have built up gradually from a small beginning. I believe they are one of the first business houses in the world to undertake to bear *all* the responsibility. In one of the little slips they send out with their advertising they say something like this: "After you send us an order you need not worry or lie awake nights for fear something will go wrong. We do all the work of worrying and lying awake nights for you. We guarantee the goods shall be as represented, and in every way satisfactory; that the freight charges shall be reasonable, and that nothing shall be broken or damaged on the way. If every thing is not just right you may send the goods back, and we will pay all expenses both ways. You shall not be out of pocket a cent."

When I was out in the woods at work I found I wanted a log-chain and a crowbar. I found exactly the articles I wanted, described in Montgomery Ward & Co.'s catalog; and to make it plain I tore out a part of the leaf, and sent it by a neighbor to Traverse City, telling him I was willing to pay 25 cents more than the price printed on the leaf; but if they wanted more than that he was not to buy. He went to three hardware stores. All three said they had no goods at any such price. They said the log-chain would break, and the crowbar would double up; the stuff was no good. But all three of the hardware dealers seemed to be mad when he showed them a leaf from that catalog. Now, I had been for some time thinking that I would send for a whole lot of little traps, to that firm, to experiment with, to see how they managed to have everybody satisfied. A good many of the tools I wanted cost only two or three cents. Well, the chain and crowbar were just beautiful, at least for the money. The log-chain used by the farmers I had hired had no swivel, and so they broke the chain several times just because there was a kink in the links. The one from M. W. & Co. is 14 feet long,  $\frac{3}{4}$  in, and had a big stout swivel in the middle so it could not kink. It was the prettiest log-chain I ever saw, hooks and all. It cost only \$1.60. The crowbar cost 70 cents, and it is a splendid tool every way. They advertised what was called the "little handy bar," for 28 cents. Everybody who has seen this has wanted it—even the women folks; and every thing I ordered was of the very best and latest make.

Mrs. Root was made happy with a tin cup and little basin of aluminum, costing only 14 cents each. If you have never used aluminum in your household utensils, there is a happy surprise awaiting you. You can scald milk or any thing else in aluminum, and it will never burn on or stick. It never rusts, and it is almost as light as a feather. Just one more illustration:

I ordered two caps, telling them I would keep one and return the other by mail. I did this, putting on 9 cents postage. But they returned the 9 cents promptly, saying it was their business to pay *char*, as *smith* says when any thing did not suit. In fact, they *both* suited, but I did not really want two. Under the circumstances I thought it was no more than fair that I should pay the 9 cents. They seemed to think otherwise, however. Now, the point of all this long talk is this:

This firm has been built up to its immense proportions by doing business on Christian principles. They do all they agree to; and where there is any question they do a little more, thus verifying what I have often said through all my life—that the best advertisement that any man can ever have is to treat his customers, each and all, in a Christianlike way. Let the spirit of Christ Jesus be seen through all your business. Though shalt love thy neighbor as thyself.

Some of you may suggest right here that the hardware men could not afford to sell goods as cheaply as Montgomery Ward & Co., they can not *buy* them as low, etc. I reply that they can *certainly* buy the goods of M. W. & Co., and they can add enough to pay freight and a reasonable profit besides. No one would object to paying them a fair margin instead of sending to Chicago. The freight on all our stuff, including eavespouts, conductors, etc., to spout our barn in good shape, was only 74 cents.

## Brings Big Hatches

That's the test of an incubator and that's the record of the



## SUCCESSFUL.

**SUCCEED  
WITH A  
SUCCESSFUL**

Don't experiment. Get a time tried and proved incubator. The **Successful** not only hatches perfectly, but it will last a life-time—does not swell nor shrink. Get our big incubator book (156 pages) free. Other catalogues in 4 languages.

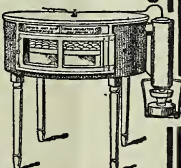
**Des Moines Incb. Company,**

Dept. 503, Des Moines, Iowa,  
or Dept 503 Buffalo, N.Y.

## Counting Chicks Before Hatching

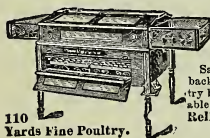
is not safe unless you have an

## IOWA ROUND INCUBATOR



R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The IOWA has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.

IOWA INCUBATOR COMPANY, BOX 197, DES MOINES, IOWA



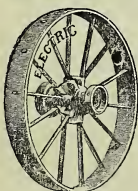
110  
Yards Fine Poultry.

## RELIABLE INCUBATORS and BROODERS.

Satisfaction guaranteed to your money back. Send 10 cents postage for great poultry book just issued, explaining remarkable guarantee under which we sell.

Reliable Incubator & Brooder Co.,  
Box B-49 Quincy, Ill.

## Wagon World Awheel.



Half a million of these steel wheels have been sent out on our wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest-lived wheel made. Do you want a low-down Handy Wagon to use about the place? We will fit out your old wagon with Electric Wheels of any size and any shape tire, straight or staggered spokes. No cracked

hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalog. It is free.

Electric Wheel Co., Box 95, Quincy, Ill.



PAGE

## THE TEST

of a fence is, "How long does it last?" and "How well does it serve its purpose?" How's ours?

Page Woven Wire Fence Co., Box S, Adrian, Michigan.

## The Automatic Sure Hatch



## 30 Days Free Trial

of the best incubator ever made. New automatic, direct action regulator—greatest improvement ever made in incubators. No complications. Sold at reasonable price. Don't pay double for out of date machine. Large illustrated catalogue free.

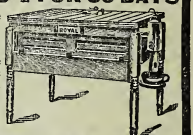
**SURE HATCH INCUBATOR CO.,**  
Clay Center, Neb. or Columbus, Ohio.

## TRY IT FIRST FOR 30 DAYS

### ROYAL INCUBATOR.

the best self-regulating, automatic incubator in the world. It works perfectly. If not satisfactory in every way send it back. Cat's free.

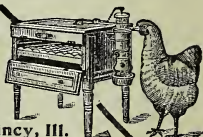
**ROYAL INCUBATOR CO.,**  
Dept. 503, Des Moines, Iowa.



## \$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

**GEO. H. STAHL, Quincy, Ill.**



## TRY AN IDEAL.

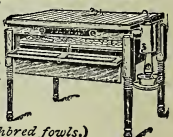
J. W. Miller's incubator—made by the man who knows. It is really self-regulating.

## 30 DAYS FREE TRIAL

We get no money until you are perfectly satisfied. Poultry Book Free.

**J. W. MILLER CO.,**  
Box 48, Freeport, Ill.

(Poultry supplies and thoroughbred fowls.)



YOU CAN SIZE UP THERE IS ONLY ONE BANTAM INCUBATOR IN PRIZES \$4500.00  
\$9.50 FOR 100 EGGS \$5.00 FOR 50 EGGS  
20 OUR PATRONS 30 DAYS TRIAL  
SELF-REGULATING HATCHES EVERY GOOD EGG  
GUARANTEED SEND 5 CENTS FOR CATALOG AND PREMIUM LIST  
**BUCKEYE INCUBATOR CO. OHIO**



## GRAT POULTRY BOOK

My 1903 catalogue. Elegant in illustration, full of practical hints, describes 56 breeds of prize winners. Low prices for birds and eggs. Book postpaid, 10 cents. Calendar for 1903 on cover.

**B. H. GREIDER, RHEEMS, PA.**



**POULTRY PAPER**, illust'd, 20 pages, trial 10 cents. Sample Free. 64-page practical poultry book free to yearly subscribers. Book alone 10 cents. Catalogue of poultry books free. *Poultry Advocate*, Syracuse, N.Y.

## BEST SMALL FRUITS.

Standard and improved varieties of Raspberries, Blackberries, Gooseberries, Currants, Grapes, Strawberries, etc. Every plant grown and guaranteed by me. Ship only clean, vigorous, well rooted, fresh dug plants that give results. Write for late catalog.

**Allen L. Wood, Wholesale Grower, Rochester N.Y.**



## THIS CHECK

and several smaller ones

I received the past season for **Strawberries** (not plants). That was because I have only the best. It pays to get the best. I

sell none but the best. I can't afford to

have any other. The cost of plants is comparatively a small item and the best is none too good. I will send my beautifully illustrated catalogue with lithographed covers of **High Grade Strawberry Plants** by return mail for two 2c stamps. If interested send to-day. This will not appear again. Address,

**W. F. ALLEN, Salisbury, Md.**

## SEEDS VEGETABLE AND FLOWER

In fact everything in the Nursery and Florist line. We send by mail postpaid **Seeds, Plants, Roses, Bulbs, Small Trees**, Etc., safe arrival and satisfaction guaranteed, larger by express or freight. Send for our elegant 168 page free catalogue and see what values we give for your money. 49 years. 44 greenhouses, 1,000 acres.

**THE STORRS & HARRISON CO., Box 170 Painesville, Ohio.**

**MANN'S  
LATEST  
BONE  
CUTTER**

### BRINGS MORE EGGS

Makes healthier fowls. All latest improvements.

**SENT ON TEN DAYS' FREE TRIAL.**

No money until you're satisfied that it cuts easier and faster than any other. Isn't that better than paying cash in advance for a machine that you never saw! Catalogue free. **F. W. MANN CO., Box 37, Milford, Mass.**



**\$47.50**  
OUR  
GENUINE  
**SPLIT HICKORY SPECIAL  
TOP BUGGY**

Is sold direct from the makers at **\$47.50** and **30 DAYS' FREE TRIAL** allowed before acceptance. This is **YOUR** chance. Just drop postal for catalogue.

**OHIO CARRIAGE MFG. CO.,**  
Station 27, Cincinnati, Ohio.

**ALWAYS READY.**  
*The* **ADAM** **Green Bone CUTTER**

is always clean and ready for work. Impossible to choke it up. Cleans itself. **The Only Bone Cutter** with all ball bearings. Works quick y and easily. No choking or injuring of fowls by slivers or sharp pieces. Cuts a clean light shave that is easily digested by smallest chicks. Send for Catalog No. 39. Contains much valuable information on the cut bone question. You will be pleased with it. Sent free upon request.

**W. J. ADAM, JOLIET, ILLS.**

**Actual Results**

of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

**The Best Spraying Pumps**

bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sale owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

**THE DEMING CO., SALEM, O.**

**THE HUMPHREY**

**GREEN BONE and VEGETABLE CUTTER**

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial offer and handsome catalogue.

**HUMPHREY & SONS,**  
Box 51, Joliet, Illinois

**See Latest Model**  
*Stearns* **Bone Cutter.**

Ball bearings, automatic feed. Money back if not satisfactory. Send for free catalogue and special trial offer.

**E. C. STEARNS & CO., Box 107 SYRACUSE, N. Y.**

# Revised Price List of Garden Seeds for January, 1903.

**PLEASE NOTICE** that any or all seeds mentioned below are sold in five-cent packages, postpaid, by mail. For ten papers ordered at one time, 40 cents; 100 papers, \$3.50. Of course, scarce and high-priced seed will necessitate making a very small amount of seed in a package; but by far the greater part of them contain a full half ounce of good fresh seeds. By comparing these packages with those you get of most of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered rather than compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts. per  $\frac{1}{2}$  lb., or 1 ct. per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck will be sold at ounce, pound, or peck rates unless otherwise specified.

## ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 40c.

## BUSH BEANS.

Burpee's Bush Lima. Pt. 15c; qt. 30c;  $\frac{1}{2}$  pk. \$1.00; Wood's Improved Bush Lima. Pt. 20c; qt. 35c; pk. \$2.00. An improved one on Henderson's, and larger.

Days Wax Bean. Pt., 8c; qt., 15c; 4 qts., 55c; pk. \$1.00; bushel, \$3.75.

Dwarf German Wax, black seeded.  $\frac{1}{2}$  pt. 8c; pt. 12c; qt. 20c. Perhaps the best wax bean, and very early. Prize-winner Extra Early Shell Bean.  $\frac{1}{2}$  pt. 8c; pt. 12c; qt. 20c;  $\frac{1}{2}$  pk. 65c; peck, \$1.25.

This is not only the earliest shell bean we have ever come across, but it is a tremendous yielder, and the best quality of any white bean we know of. It is so exceedingly early that in the season of 1900 we grew two crops on the same ground, and the second crop was from beans that ripened from the first crop.

White Kidney, Large. Pt. 8c; qt. 15c; pk. \$1.00; bu., \$3.50.

York State Marrow. The standard field bean. Qt. 10c; pk. 75c; bushel, \$2.75.

Banner Field Beans. Qt. 10c; pk. 70c; bushel, \$2.75.

## POLE BEANS.

Extra-Early Lima Beans.  $\frac{1}{2}$  pt. 8c; qt. 25c; pk. \$1.75. King of the Garden Lima.  $\frac{1}{2}$  pt. 8c; qt. 25c; pk. \$1.75.

*All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.*

## BEEFS.

Eclipse. Oz. 5c; lb. 40c; 5 lbs. \$1.75. Long Red Mangel. Oz. 5c; lb. 20c; 5 lbs. 90c; 10 lbs. \$1.60; 20 lbs. or more, 15c per lb.

Golden Tankard Mangel. Oz. 5c; lb. 20c; 5 lbs. 90c; 10 lbs. \$1.60; 20 lbs. or over, 15c per lb.

## STANDARD SUGAR BEETS.

Lane's Imperial Sugar. Oz. 5c; lb. 20c; 5 lbs. 75c; 10 lbs. or more, 14c per lb.

French White Sugar Red-top. Same price as Lane.

## CABBAGE.

Select, Very Early Jersey Wakefield. Oz. 20c; lb. \$2.50.

Henderson's Early Summer. Oz. 10c; lb. \$1.25.

Fottler's Brunswick. Oz. 10c; lb. \$1.25.

Burpee's Sure-head. Oz. 10c; lb. \$1.25.

Excelsior Flat Dutch. Oz. 10c; lb. \$1.25.

Perfection Drumhead Savoy. Oz. 10c; lb. \$1.25.

Large Red Drumhead. Oz. 10c; lb. \$1.25.

## CARROTS.

Early French Forcing. Oz. 5c; lb. 60c.

Orange Danvers, Half Long. Oz. 5c; lb. 50c; 5 lbs. \$2.25.

## CAULIFLOWER.

March's Improved Early Snowball. (Mattituck Ex-furt.)  $\frac{1}{2}$  oz. 30c;  $\frac{1}{4}$  oz. 50c; oz. \$1.75.

## CELERY.

Henderson's White Plume. Oz. 10c; lb. \$1.00.

Golden Self-blanching Celery. Oz. 15c; lb. \$1.75.

New Rose. Oz. 10c; lb. 75c.

Giant Paschal. Oz. 10c; lb. 75c.

Dwarf Golden Heart. Oz. 10c; lb. \$1.00.

## CORN (for table use).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay postage, which is 3c for each half-pint. If wanted in larger quantities the price (where no price is given) will be, pt. 7c; qt. 10c; pk. 75c; bu. \$2.90.

Kendel's Early Giant Sweet Corn.

Ford's Early Sweet.

Late Mammoth Sugar.

Stowell's Evergreen.

Country Gentleman, or Improved Shoepeg.

Rice Pop Corn. Extra fine.

Sweet Corn for fodder. Pk. 40c; bu. \$1.50.

## CORN SALAD.

Oz. 5c; lb. 40c.

## CRESS.

Extra Curled, or Pepper Grass. Oz. 5c; lb. 40c.

Water Cress, true. Oz. 25c; lb. \$2.50.

## CUCUMBER.

Early Frame. Oz. 15c; lb. \$2.00.

Improved Early White Spine, or Arlington. Oz. 15c; lb. \$2.00.

Green Prolific, or Boston Pickle. Oz. 15c; lb. \$3.00.

## LETTUCE.

Grand Rapids Lettuce. Oz. 5c; lb. 50c; 5 lbs. \$2.00.

Big Boston. Oz. 5c; lb. 50c.

Henderson's New York. Oz. 5c; lb. 50c.

## MELONS, MUSK.

Casaba, or Persian Muskmelon. Oz. 8c; lb. 75c.

Banana. Oz. 8c; lb. 75c.

Extra Early Citron. Oz. 8c; lb. 75c.

Emerald Gem. Oz. 8c; lb. 75c.

Miller's Cream, or Osage. Oz. 8c; lb. 75c.

Paul Rose Muskmelon. Oz. 8c; 1 lb., \$1.00. New; fine.

Rocky Ford Canteloupe Muskmelon. The same that so many people enjoyed at the Omaha exposition. oz. 10c; 1 lb. \$1.00.

## MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 30c.

Landreth's Boss. Oz. 5c; lb. 30c.

Sweetheart. Oz. 5c; lb. 30c.

## ONIONS.

*A leaflet on "Growing Onions to Bunch up" will be mailed on application.*

Yellow Globe Danvers. Oz. 8c; lb. 75c; 5 lbs. \$3.25.

Large Red Wethersfield. Oz. 8c; lb. 75c; 5 lbs. \$3.25.

Prizetaker. Oz. 15c; lb. \$1.25.

White Victoria. Oz. 20c; lb. \$2.50.

American (Extra Early) Pearl. Oz. 25c;  $\frac{1}{2}$  lb. \$1.75; lb. \$3.25.

Extra Early Red. Oz. 8c;  $\frac{1}{4}$  lb. 30c; lb. \$1.00.

Bermuda (true Teneriffe). Oz. 25c; lb. \$2.00.

Giant Gibraltar Onion. Oz. 20c; lb. \$2.50; new and fine; still larger than Prizetaker.

## PARSNIP.

Improved Guernsey. Oz. 5c; lb. 25c; 10 lbs. \$2.00.

## PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 35c.

## PEAS.

Peas of all kinds are very scarce. If you think our prices high, look over your seed catalogues and see what some of the rest are charging for them.

Alaska.  $\frac{1}{2}$  pt. 7c; qt. 20c; pk. \$1.35; bu. \$5.00.

American Wonder. Qt. 25c; pk. \$1.60; bu. \$6.00.

Premium Gem. Qt., 25c; pk. \$1.60; bu. \$6.00.

Stratagem.  $\frac{1}{2}$  pt. 8c; qt. 20c; pk. \$1.25; bu. \$4.50.

Champion of England. Pt. 10c; qt. 20c; pk. \$1.25; bu. \$4.50.

Canadian Field. Pk. 60c; bu. \$2.00.

*Peas by mail will be at same rate as beans for postage.*

## PEPPERS.

Sweet Spanish.  $\frac{1}{4}$  oz. 5c; oz. 15c.

Bullnose.  $\frac{1}{4}$  oz. 5c; oz. 12c.

Cayenne.  $\frac{1}{4}$  oz. 5c; oz. 15c.

## PUMPKIN

Early Sugar. Oz. 5c; lb. 35c. Specially for pies

Field Pumpkin. Oz. 5c; lb. 15c.

## RADISHES.

Early Scarlet Globe. Oz. 5c; lb. 40c.

Wood's Early Frame. Oz. 5c; lb. 40c.

Beckett's Chartist. Oz. 5c; lb. 40c.

Chinese Rose Winter. Oz. 5c; lb. 50c.

## RHUBARB.

Myatt's Victoria. Oz. 10c; lb. \$1.00.

**SALSIFY, OR OYSTER PLANT.****New Mammoth.** Oz. 10c; 1b. \$1.00.**SPINACH.****Bloomsdale Extra Curled.** Oz. 5c; 1b. 20c; 5 lbs. 75c.**SQUASH.****Giant Summer Crookneck.** Oz. 10c; 1b. 75c.**Hubbard.** Oz. 5c; 1b. 50c; 5 lbs. \$3.50; 10 lbs. \$6.50.**TOMATO.****Golden Queen.** Pkt. 5c; oz. 15c; 1b. \$2.00.**Ignomtum Tomato.** ½ oz. 8c; oz. 15c; 1b. \$2.00.**Livingston's Beauty.** Oz. 12c; 1b. \$1.75.**Earliest-in-the-world Tomato.** ½ oz. 5c; ¼ oz. 10c; ¼ oz. 15c; oz. 25c.**Fordhook First.** Oz. 20c; 1b. \$2.75.**Dwarf Champion.** Oz. 15c; 1b. \$2.00.**Buckeye State.** Oz. 15c; 1b. \$2.00.**Livingston's New Stone.** Oz. 10c; 1b. \$1.25.**Trophy Tomato.** Oz. 10c; 1b. 75c.**Pear shaped Tomatoes.** Oz. 20c; 1b. \$2.50.**TURNIP.****Yellow Aberdeen.** Oz. 5c; 1b. 30c.**White Egg.** Oz. 5c; 1b. 30c.**Breadstone.** Oz. 10c; 1b. \$1.00.**Purple-top White-globe.** Oz. 5c; 1b. 30c; 5 lbs. \$1.25.**Potatoes, Clover-seed, etc.**

TABLE OF PRICES.

| NAME.                                                                                                | 1 lb. by mail. | 3 lbs. by mail. | Half Peck. | Peck. | Half Bushel. | Bushel. | Barrel, 11 pks. |
|------------------------------------------------------------------------------------------------------|----------------|-----------------|------------|-------|--------------|---------|-----------------|
| Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on. |                |                 |            |       |              |         |                 |
| Red Bliss Triumph.....                                                                               | \$ 18          | \$ 40           | \$ 30      | \$ 40 | \$ 75        | \$1.25  | \$3.00          |
| Six Weeks.....                                                                                       | 18             | 40              | 30         | 40    | 5            | 1.25    | 3.00            |
| Early Ohio.....                                                                                      | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Early Michigan.....                                                                                  | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Early Trumbull.....                                                                                  | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Bovee.....                                                                                           | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| New Queen.....                                                                                       | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Freeman.....                                                                                         | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Lee's Favorite.....                                                                                  | 18             | 40              | 30         | 40    | 75           | 1.25    | 3.00            |
| Twentieth Century.....                                                                               | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| State of Maine.....                                                                                  | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| Maule's Commercial.....                                                                              | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| Carman No. 3.....                                                                                    | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| Sir Walter Raleigh.....                                                                              | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| King of Michigan.....                                                                                | 25             | 50              | 35         | 50    | 85           | 1.50    | 3.50            |
| California Russet.....                                                                               | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |
| New Craig.....                                                                                       | 15             | 35              | 20         | 35    | 60           | 1.00    | 2.50            |

Seconds, while we have them, will be half price (for description of seconds see page 828), but at the present writing, Jan. 1, we are sold out of seconds of Six Weeks, Early Ohio, Bovee, Carman No. 3, Sir Walter, Russet, and Freeman

A barrel can be made up of as many varieties as you choose, and they will be at barrel prices if you have a whole barrel or more. We will keep them safely in our potato-cellar until next April if you prefer. Potatoes that are wanted in the South we will ship later than the date given above; and we will guarantee protection from frost by giving them extra care in packing in paper and fine sawdust. But as this extra packing incurs extra labor and risk, we shall have to ask a little more, which additional charge will depend on where they are to go, and in what season of the year you want them. Let me know *what* you want, and *when* you want to plant them, and we will do the best we can in way of prices.

**POTATOES AND GARDEN SEEDS TO BE GIVEN AWAY.**

Everybody who sends \$1.00 for GLEANINGS (asking for no other premium) may have 25 cents' worth of potatoes, seeds, etc., providing he mentions it at the time he sends in the money; and every subscriber who sends us \$1.00 for a new subscriber so that GLEANINGS may go into some neighborhood or family where it has not been before, may have 50 cents' worth of potatoes, seeds, etc.

You can have your premium potatoes sent by mail, express, or freight; but if you want them sent by mail, you must send the money for postage. For 25 cents you can have 5 lbs. of potatoes; but the postage and packing amounts to ten cents for each pound; and I do not believe you want to pay 50 cents in postage for 25 cents' worth of potatoes. As a rule, potatoes should go only by freight; 25 cents' worth is hardly enough for a freight shipment; so by far the better way would

be to have them shipped by freight with other goods. The express charges on only 25 cents' worth are very often as much as the postage, and sometimes more.

**PRICES ON CLOVER SEED AT THIS DATE.**

Although the market is not very well settled as yet for 1903, as near as we can make out the prices will be about as follows. But let it be understood there are liable to be fluctuations, and we can not be responsible unless for immediate orders.

Alsike clover, bu., \$10; ½ bu., \$5.25; peck, \$2 75; 1 lb., 20c, or by mail, 30c.

Medium clover, bu., \$7.00; ½ bu., \$3.75; peck, \$2.00; 1 lb., 18c, or 25c by mail.

White Dutch clover, bu., \$12.00; ½ bu., \$6.25; pk., \$3.25; 1 lb., 25c; 1 lb. by mail, 35c.

Peavine, or Mammoth Red clover, same as medium.

Alfalfa, same as medium

Crimson, or scarlet clover, bu., \$1.50; ½ bu., 2 40; peck, \$1 25; 1 lb., 10c, by mail 20c; 3 lbs., by mail, 50c.

Sweet clover, 100 lbs., 10c per lb.; 10 lbs. at 12c; 1 lb., 15c; by mail, 25c per lb.

**The Best of Everything**

THE through train service of the Chicago & North-Western Railway from Chicago to Omaha, Denver and the Pacific Coast on the west, the Black Hills and Dakotas to the northwest and to Milwaukee, Madison, St. Paul, Minneapolis and Duluth on the north, is as nearly perfect as modern and skillful management can make it.

**The Overland Limited,** a magnificent electric-lighted train, less than three days Chicago to San Francisco, daily.

**The Colorado Special,** only two nights to Denver from the Atlantic seaboard. Solid train Chicago to Denver.

**The North-Western Limited,** an electric lighted daily train between Chicago, St. Paul and Minneapolis.

H. R. McCULLOUGH, W. B. KNISKERN,  
3d Vice-President. Passenger Traffic Manager.  
CHICAGO, ILL.

**Queens == Queens == 1903.**


We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes are bred for business. Tested queens, \$1 50; \$8.00 for 6; \$15.00 per dozen. Untested, \$1 00 each; \$5 00 for 6; \$9.00 per dozen. Our best and finest breeders, \$5.00 each. One and two f ame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed.

The Jennie Atchley Co., Box 18, Beeville, Tex.



**FENCE! STRONGEST MADE.** Bull Strong, Chicken Tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free. COILED SPRING FENCE CO. Box 101, Winchester, Indiana, U. S. A.

**\$15  
15  
30**



**DOUBLE  
YOUR  
SALARY**

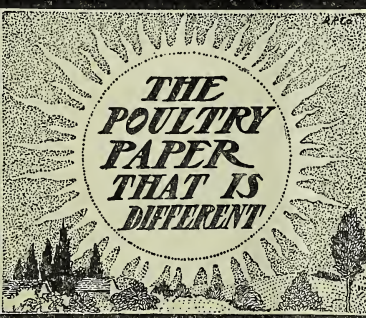
Don't spend spare time thinking what you might be if your salary were doubled! *Doing*, not thinking, will make your wish a reality. Our free booklet, "Are Your Hands Tied?" tells you what to do and how to do it. Thousands have already doubled or largely increased their salaries by following our plan. Under our guidance you can do the same. Act today! I. C. S. Text-books make it easy for those already at work to

**Learn By Mail**

Mechanical, Steam, Electrical, Civil, Mining, Telephone, and Telegraph Engineering; Ship and Foundry Practice; Mechanical Drawing; Architecture; Plumbing; Sheet-Metal Pattern Drafting; Chemistry; Ornamental Design; Lettering; Book-keeping; Stenography; English Branches; Teaching; Locomotive Running; Electrotherapeutics; German; Spanish; French.

Circular free. State subject that interests you.

**INTERNATIONAL CORRESPONDENCE SCHOOLS,  
Box 799, SCRANTON, PA.**



Everything under the Sun worth knowing shines forth in

**COMMERCIAL  
POULTRY**

(The Poultry Paper That is Different)  
**1 YEAR 24 TIMES 50 CENTS**

Send us name and full address on a postal and see how good it is. Free if you mention this paper.

**DRAPER PUBLISHING COMPANY  
Dept. C-45 Chicago, Ill.**

N. B.—You can make good money representing the "DRAPER TRIO." Write today for terms. Our great prize contest is on, and you will be just in time if you write quick.

NOTHING AS GOOD ADVERTISED ANYWHERE.

**Sewing Machines**

**\$7.25 TO \$26.50** Shipped on approval



anywhere in U. S. No money in advance. All kinds, all styles, direct from factories. Avoiding salesmen's expenses and dealers or agents exorbitant profits saves you from \$10 to \$45. Estab. 1885. 250,000 sold. Testimonials from every state. Reference: First Nat'l Bank, Chicago. Send for big illustrated catalogue showing all styles and samples of work.

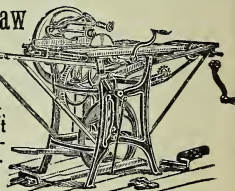
**CASH BUYER'S UNION, Dept. K 345 Chicago.**

Swell Front  
Ball Bearing  
Guaranteed for 20 years.

## Union Combination Saw

For Ripping, Cross-cutting, Rabbiting, Mitring, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading, Full line Foot and Hand Power machinery. Send for catalog A.

**SENECA FALLS MFG. CO.,  
4 Water St., Seneca Falls, N.Y.**



## HONEY QUEENS!

Laws' Leather-colored Queens.

Laws' Improved Golden Queens.

Laws' Holy Land Queens.

Laws' queens are doing business in every State in the Union and in many foreign countries. The demand for Laws' queens has doubled any previous season's sales. Laws' queens and bees are putting up a large share of the honey now sold. Laws' stock is being sold for breeders all over the world. Why? Because it is the best to be had. Remember! That I have a larger stock than ever; that I can send you a queen any month in the year, and guarantee safe delivery; that I have many fine breeders on hand. Price, \$3.00 each. Tested, each, \$1.25; five for \$6.00. Prices reduced after March 15. Send for circular.

**W. H. Laws, Beeville, Texas.**

## Two Virginia Farms for Sale,

at 50 per cent of their actual value if sold within 60 days. Farm No. 1, 400 acres, 60 acres James River low-grounds, worth \$60 per acre, \$3600; 340 acres uplands worth \$10 per acre, \$3400; buildings at lowest estimate worth \$3000; \$3000 cash, \$2000 on time at 6 per cent interest, takes this property worth \$10,000. Farm No. 2, 400 acres watered by two fine mountain streams, on which are 100 acres of fertile bottoms, 100 acres uplands in cultivation and pasture, balance is virgin forest which will cut 200,000 feet of first-class lumber; good dwelling and some outbuildings. \$3500 will buy this farm—\$500 cash, balance to suit the purchaser. The land on these two farms is fertile, free from stones, and every acre tillable, after clearing.

**B. F. Averill, Howardsville, Va.**

**CRUSHED OYSTER SHELLS.** 100 lbs., 49c; 200 lbs., 95c; Mica Crystal Grit, 100 lbs., 57c; 200 lbs., \$1.07, or 100 lbs. each, \$1. Poultry need both. Order now. Catalog free. **WISE & CO., Butler, Ohio.**

## POULTRY PAPER 3 Months

and book, "Plans for Poultry-houses," 10 cts. Paper one year and book, 25 cts, if you mention Gleanings (reg. price, 50 cts) **Inland Poultry Journal, Indianapolis, Indiana.**

**1200 FERRETS.** All sizes; some trained; first-class stock. New price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

# GET ACQUAINTED

with the BEE-KEEPERS' REVIEW. You can do it now at very little cost, and you will be surprised at the amount of valuable information and helpful ideas that are packed within its pages. For \$1.00 you will get all of the issues for 1902 (except the January issue, the supply of which is now exhausted, but some other excellent number will be sent in its place) and the REVIEW for all of next year, thus giving you the issues of two years for only \$1.00. Add \$1.00 more to the order (making \$2.00 in all) and your order will be booked for a queen of the Superior Stock to be sent next spring.

W. Z. HUTCHINSON,      =      =      FLINT, MICHIGAN.

## GRAM'S Standard American Railroad-system Atlas and Shipper's Guide!!

◆◆◆◆◆

The only atlas with railroad systems in colors. It embraces all the good points of other Atlases, and contains many additional features of its own. Send for sample map and information.

◆◆◆◆◆

552-556 Wabash Ave., Chicago, Ill.  
130 Fulton Street, New York City.

## FOR SALE Comb Extracted HONEY

in carlots or less. If in the market, state quantity wanted, and we will name you "lowest price." Samples of Extracted furnished on request. If you have any Comb or Extracted to ship, correspond with us.

Established 26 Years.

S. T. Fish & Co., Chicago, Illinois.

189 South Water Street.

## Nursery Stock of All Kinds !

Complete line of TREES, VINES, and PLANTS; hardy and true to name. Write for prices before placing orders.

E. A. Boal Co., Nurserymen, Hinchman, Michigan.

**\$1.00**

Sample  
Free

## DO IT QUICK

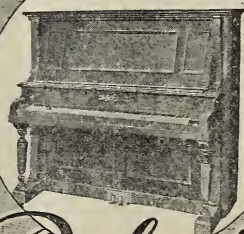
Modern Farmer & Busy Bee, 50c.  
American Poultry Journal, 50c.  
Gleanings in Bee Culture, \$1.00.  
All for \$1.00 if you mention this paper, and address  
Modern Farmer, St. Joseph, Mo.

## Root's Goods in Central Michigan!

Sold at their prices. Present given with each order amounting to \$2 or over. List sent free.

W. D. Soper, Rural Route No. 3, Jackson, Michigan.

## The Ideal Piano



**Packard**

Built anticipating the demand of those satisfied with nothing but the best and looking for a piano of the Highest Artistic Creation

Are you considering the purchase of a piano? Our proposition will prove more entertaining than any you have had. Catalog and full information free on application.

THE PACKARD COMPANY  
P. O. Box F      Fort Wayne, Indiana

# Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.  
E. R. ROOT, Editor of Apicultural Dept.  
J. T. CALVERT, Bus. Mgr.  
A. L. BOYDEN, Sec.

**TERMS.** \$1.00 per annum; two years, \$1.50; three years, \$2.00; five years, \$3.00, *in advance*; or two copies to one address, \$1.50; three copies, \$2.00; five copies, \$3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

**DISCONTINUANCES.** The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.



## CATALOG FOR 1903.

We are pleased to announce that we are a little ahead of former years in getting our catalog out on time. We have already begun mailing the new edition for this year. We are mailing to southern territory first, and will get around to the entire list as soon as possible. If you can not wait till your copy arrives in its turn, we shall be pleased to mail you one on request sent to us on a postal.

## NO. 25 JARS IN STOCK AGAIN.

We are pleased to be able to announce that we are again supplied with No. 25 glass jars which have become so popular for putting up extracted honey for retail trade. They hold an even pound of honey. While we can supply them in crate at 50 cts. per gross less than in barrels, yet we have had so many complaints of breakage in shipments going long distances in crates, we can not recommend that method of shipping except for short distances. We can sell the new "Tip Top" jars cheaper than the No. 25, and many prefer them. Either supplied promptly to those interested.

## BEEWAX WANTED.

The market for beeswax remains steady with a moderate supply. We are shipping so much foundation to dealers on next season's trade that we are using a much larger quantity early in the season than we have in former years; consequently our surplus is exhausted, and we are using supplies as fast as they arrive. We shall be pleased to hear from those having wax for sale. We are paying at present for average wax, delivered here, 28 cents cash, 30 in trade, and from one to two cents extra for choice quality. Send on your shipments as soon as ready; and be sure to mark them, so we may know whom they come from. Write us at the same time, and send shipping-receipt and a notice of the weight shipped.

## SECOND-HAND FOUNDATION-MILLS.

We have on hand and offer for sale the following second-hand foundation-mills. Any one desiring a sample of the work of any one of these machines, or further particulars, we shall be pleased to accommodate on request.

No. 013, 2x6, hex. cell, extra-thin super. Price, \$8.00.  
No. 014, 2x6, hex. cell, extra-thin super. Price, \$8.00.  
No. 037, 2x6, hex. cell, ex. thin super, good. Price, \$10.  
No. 2132, 2x6, hex. cell, thin super. Price, \$10.  
No. 2227, 2x6, hex. cell, thin super. Price, \$10.  
No. 2275, 2½x6, hex. cell, ex. thin super. Price, \$10.  
No. 065, 2x10, round cell, medium old-style frame, in good condition. Price, \$12.  
No. 038, 2x10, round cell, med. to light, in good condition. Price, \$14.  
No. 050, 2x10, round cell, medium. Price, \$12.  
No. 044, 2x10 Pelham, nearly new. Price, \$6.  
No. 034, 2½x12½, round cell, very old style, in fair condition. Price, \$10.  
No. 043, 2½x14, round, medium to heavy, good condition. Price, \$14.  
No. 051, 2x10, round cell, medium brood. Price, \$10.

## Special Notices by A. I. Root.

### GINSENG AND ITS CULTIVATION, HARVESTING, MARKETING, MARKET VALUE, ETC.

The above is the title of a new book just published by the O. Judd Co. It contains 144 pages, is full of beautiful illustrations, and it is without question a very valuable book for those who are growing or intend to grow ginseng. I have looked it over very carefully, especially that part of it devoted to the medicinal properties of the plant, and I am sorry to say it has no medicinal value, or nearly none, outside of China; and their ideas in regard to its value are very likely mostly superstition. It is true, there are a few people in the United States who think it has medicinal value, and a medicine is already in the market made from ginseng. It seems to me exceedingly strange our American people do not at least *imagine*, with the Chinese, that ginseng has some wonderful virtue. I have all my life been in sympathy with all horticultural operations unless, indeed, it has been the cultivation of tobacco; and I still believe in growing even that to kill bugs, but *not* to kill our boys. I confess I have read over the ginseng book with great interest; and I have been tempted again and again to have a ginseng-garden in place of the one little patch we have across the way. I do not think it will ever harm anybody in the way tobacco does; and I do not know that it does any *harm* to the Chinese unless it is to furnish them a god to worship. I should not wish to go into the business of making idols of brass or gold, or of wood or stone; however, I believe ginseng has some medicinal properties. May be it is not a valuable medicine for every one, but I think it is good for me, or at least it was when a boy. I used to carry it in my pocket to chew whenever I felt symptoms of a chronic dysentery that has followed me nearly all my life; and for many years it was certainly a good medicine for me, or at least I imagined it was good, and this *may* amount to the same thing. This book has many photos of beautiful ginseng-gardens. The same kind of lath covering that they use for pineapples and other tropical fruits in Florida is what you want for ginseng. In fact, a covered ginseng-bed looks exactly like a pineapple-bed.

This book gives a very fair estimate of the profits—that is, at present prices of the root. It has none of the spread-eagle figures that go away up into the millions. Perhaps you have all seen them. If you want the book we can mail it to you for 50 cents.

### YOUR NAME AND ADDRESS.

Every man and woman, and, for that matter, every child, should be urged very early to adopt some particular way of signing his name and address. Yes, as soon as a child can write his name he should be urged to adopt some particular form. If he decides to use only initials let him always do it the same way. If his name is Smith, in view of the great number of Smiths he had better spell out in full his first or second name; but having once decided (perhaps by the aid of his friends) just how he is going to make his signature, let him *always stick to it*. And he should also be encouraged to have a rubber stamp to put on his stationery, so that all can know in plain and unmistakable

letters just *what* he is called, and *how* he is addressed. Married women especially should heed the above. It is a woman's privilege to write her name Mrs. John Smith or Mrs. Susan Smith; but she should be urged to do always one or the other. A few days ago "Mrs. John Smith" complained that she sent us some money, and we did not give her credit. After much fuss and bother our book-keeper found she signed her name Mrs. Susan Smith, and wrote from a different postoffice from what she had ever written before, and therefore the book-keepers were obliged to open an account with Mrs. Susan Smith at some other postoffice; and hadn't one of the employees happened to remember some honey being placed on the book where no account could be found, I do not know what would have been done.

The better way, by all means, is to have your correct name and address *printed* on envelopes or writing-paper, one or the other, or both. It can be done for a few cents. But if this is too much trouble, then get a rubber stamp, and stamp every thing you send out, not only to save this great busy world time and money, but to save *yourself* annoyance and disappointment. Lots of people make haste to call great business firms dishonest, just because these people themselves have not got enough life and push to avoid the trouble of blundering addresses, as I have indicated in the above. If you can not scrape up enough energy to let folks know who you are and where you live, in black and white, you ought to have been born a century or two ago, when it did not matter so very much whether the outside world knew you were alive and kicking or not.

## Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must **say** you want your adv't in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—A man to work at bees in Cuba, commencing April 1st. But little experience necessary. All questions gladly answered. Write at once to F. L. POWERS, Artemisa, Cuba, W. I.

**WANTED.**—To sell ginseng seed at \$5.00 per ounce. A. P. YOUNG, Cave City, Ky.

**WANTED.**—To sell 10 bbls. White Bliss Triumph potatoes—a little sunburned or green, but all right for seed—no sorted, \$2.00 per barrel; will ship in the spring. J. W. BITTENBENDER, Knoxville, Iowa.

**WANTED.**—To sell at a bargain, 40 colonies of bees in frame hives, in southwestern Georgia. Hives and bees in good condition.

H. M. CARR, Cranfills Gap, Texas.

**WANTED.**—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address

QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

**WANTED.**—Seven cents for sample package of our famous honey and menthol cough-drops.

R. H. SMITH, St. Thomas, Ontario, Canada.

**WANTED.**—A young man with a fair knowledge of apiculture to do general work on a small farm with an apiary of 150 stands.

JOHN S. MCCLURE, Las Cruces, N. M.

**WANTED.**—Would like to buy good second-hand hives—8 or 10 frame L. pattern and Heddon—and 200 colonies bees. Describe with price.

ELTON LANE, Route 12, Groton, N. Y.

**WANTED.**—Comb to render into wax; will pay cash. A. P. LAWRENCE, Hickory Corners, Mich.

**WANTED.**—To exchange Angora goats for any thing useful. ED. W. COLE & CO., Kenton, Ohio.

**WANTED.**—To sell for cash, 5 gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no-drip honey-cases for plain Danz. and  $4\frac{1}{4} \times 4\frac{1}{4}$  sections; made for Pan-American. For prices, etc., address OREL L. HERSHISER, 801 Huntington Ave., Buffalo, N. Y.

**WANTED.**—To sell bees and queens. Also putty-knife with iron handle and strong steel blade—just the thing for prying and scraping about hives, etc., 15c postpaid. O. H. HYATT, Shenandoah, Ia.

**WANTED.**—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited. TYLER BROS., Nicolaus, Cal.

**WANTED.**—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card. N. A. KNAPP, Rochester, Ohio.

**WANTED.**—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for \$125. J. W. BITTENBENDER, Knoxville, Iowa.

**WANTED.**—We want to hear from those having choice comb honey to sell, stating quantity, quality, size, and style of sections, and how packed. If not yet packed for shipment state how soon you can have it ready, and the price asked delivered here or free on board at your place.

THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—Two good, reliable, temperate, and experienced bee-men—men of order and neatness; one of these to thoroughly understand queen-rearing, providing the season or winter proves good.

M. H. MENDES, Ventura, Cal.

**WANTED.**—Those that are thinking of building to send us their names. We shall do your work at reasonable prices, and guarantee satisfaction.

EVERSON & EVERSON, Brilliant, Ohio.

**WANTED.**—Man with small family, who has some practical knowledge of bee-keeping and is not afraid to work, to work in apiary and fruit farm the coming summer of 1903; house and garden furnished. State wages expected.

A. E. WOODWARD, Grooms, N. Y.

**WANTED.**—Steady position, by a young man of 21, as apiarist; book-keeper or salesman in a hustling business; four years' experience in an apiary; correspondence solicited. LAFAYETTE HAINES, R. F. D. No. 1, Hyde Park, Dutchess Co., N. Y.

**WANTED.**—An experienced man to take charge of apiaries. Address with references.

DR. GEO. D. MITCHELL & CO., Ogden, Utah.

**WANTED.**—To sell 48 stands of bees. Address

M. F. MARTIN, Manchester, Ohio.

**WANTED.**—Experienced dairyman and farmer to move into new tenant house and help care for 30 to 40 cows. Stable has cement floor. Bidwell stalls, and Woodward watering-device. I ship the milk. Wages, \$25.00 per month, house-rent, garden, fuel, and other privileges. Give your age, state now many in family; also name and address of your last employer.

J. P. WATTS, Kermoor, Pa.

**WANTED.**—To exchange dry goods, ready made and mink furs (cost \$50—sell cheap) for extracted honey or offers.

JOS. REID, Mansville, N. Y.

**WANTED.**—To exchange 6-inch foundation-mill for wax, honey, or \$5.00 cash.

I. J. STRINGHAM, 105 Park Place, New York.

**WANTED.**—Typewriter, wheel-hoe and drill, and beeswax. Write for list of property in exchange.

F. H. MCFARLAND, Hyde Park, Vermont.

**WANTED.**—Redwood, cedar, or sugar-pine hive-bodies. State price.

H. VOGELER, New Castle, Cal.

**WANTED.**—To sell 40 colonies of bees in 8 L.-Hoffman frames, at \$3.00 each.

C. BROWN, New Castle, Cal.

142163

# Now Ready!

## Sixty-four Page Catalog

of every thing bee-keepers need. Illustrated and fully described. Especially valuable to beginners for the information it contains. Send your address on a postal and get it now. Established 1884.

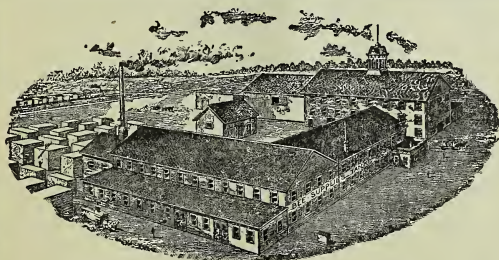
J. M. Jenkins,  
Wetumpka, Elmore Co., Ala.

## PAGE & LYON, New London, Wisconsin.

MANUFACTURERS OF  
AND DEALERS IN . . .

## BEE-KEEPERS' SUPPLIES. . . .

Send for Our Free New Illustrated  
Catalog and Price List. . . .



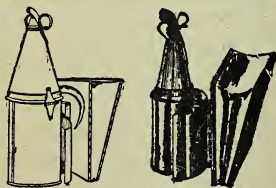
Kretschmer Mfg. Co., Box 60, Red Oak, Ia.

## BEE-SUPPLIES.

Best-equipped factory in the West; carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST goods at the LOWEST prices, and prompt shipment. We want every bee-keeper to have our FREE ILLUSTRATED CATALOG, and read description of Alternating Hives, Ferguson Supers, etc. Write at once for a catalog.

— AGENCIES —

Trester Supply Company, Lincoln, Neb.  
Shugart & Ouren, Council Bluffs, Ia.  
Chas. Spangler, Kentland, Ind.



BINGHAM SMOKER.

Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.  
Truly yours,  
HENRY SCHMIDT, Hutto, Tex.

MADE TO ORDER

## Bingham Brass Smokers.

Made of sheet brass, which does not rust or burn out; should last a lifetime. You need one, but they cost 25 cts. more than tin of the same size. The little open cut shows our brass hinge put on the three larger sizes. No wonder Bingham's four-inch smoke-engine goes without puffing, and does not drop ink drops. The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Heavy tin smoke-engine, 4-inch stove, per mail, \$1.50; 3½-inch, \$1.10; 3-inch, \$1.00; 2½-inch, 90c; 2-inch, 65c. Bingham smokers are the originals, and have all the improvements, and have been the standard of excellence for 23 years. Only three larger ones brass.

T. F. Bingham, Farwell, Michigan.

Established 1884.

## Bee-keepers' Supplies!

In placing your orders for the coming season 1903, do not forget that we always carry a stock of The A. I. ROOT COMPANY'S goods that are needed in a well-equipped apiary.

We can sell you these goods as cheap as they can be had from the factory, owing that we get carload shipments from which we can supply your wants on short notice, and at a saving of freight.

We ask a trial order to convince you that we can serve you right.

Send for our 40-page catalog, free.

Jno. F. Nebel & Son,  
High Hill, Missouri.



Minnesota,  
Dakota,  
Western  
Wisconsin

## BEE-KEEPERS!

Our 32d annual catalog for 1902 (91st edition) is ready. Send for a copy at once. We have a full line of goods in stock, and can fill your orders promptly. Save freight by ordering from the St. Paul branch.

### BEES & QUEENS.

Orders booked now for spring delivery.

### HONEY & WAX.

We handle honey and wax. Write for particulars.

The A. I. ROOT COMPANY,  
NORTHWESTERN BRANCH  
1024 Miss. St., St. Paul, Minn.

Headquarters in

## CALIFORNIA!

We wish to remind GLEANINGS readers that we are again ready to serve them with whatever they require in Bee-keepers' Supplies. We not only have a good assortment of our own manufacture but we can furnish a

### Full Line of Root's Sundries

such as Smokers, Sections, Cowan Extractors, etc. Let us have your name and address at once, and we will send you our catalog.

Union Hive & Box Co.  
Los Angeles, Cal.

## Oregon Bee-keepers



For years we have supplied you with a portion of your requirements in bee-keepers' Supplies, for which we thank you. We are better prepared than ever to take good care of orders this season. We have acquired the business of Buell Lamberson's Sons, of this place, and have the agency for this State for

### The A. I. Root Co., Medina, Ohio.

One carload is already on the way, and others will follow. If you require special goods or anything not usually kept in Western stocks, we can get it for you on our next car.

Seeds, Fertilizers, Trees, Garden Tools, Poultry and Bee Supplies.

Portland Seed Company,  
Portland, Oregon.

# Texas Bee-keepers.

**STOCK.**—Our warehouse is now stocked with a good assortment of Hives, Sections, Extractors, and other supplies direct from Medina.

**PROMPTNESS.**—We can therefore fill your orders promptly. Do not suffer long delay by ordering from some distant point but send orders here.

**HEADQUARTERS** for bee-keepers in San Antonio. Whenever you visit San Antonio you are invited to call at our office and make it your headquarters. See our display of supplies. Leading bee-journals on file for your perusal too.

**WANTED.**—Beeswax and Honey. Write for particulars.

**The A. I. Root Co.,**  
438 West Houston Street,  
**San Antonio, Texas.**

26th Year

## Dadant's Foundation.

**WHY DOES IT SELL SO WELL?**—Because it has always given better satisfaction than any other. Because in 25 YEARS there have been no complaints, but thousands of compliments.

**WE GUARANTEE SATISFACTION.**—What more can anybody do? Beauty, purity, firmness, no sagging, no loss. **PATENT WEEB PROCESS OF SHEETING.**

**BEEWAX WANTED AT ALL TIMES.**—Send name for our catalog, samples of foundation, and veil material. We sell the best veils, either cotton or silk.

**LANGSTROTH ON THE HONEY-BEE,** Revised. The classic in bee-literature. \$1.20 by mail.

**Bee-keepers Supplies**  
of All Kinds.

**DADANT & SON,**  
Hamilton, Ill.

# BEEKEEPERS Notice

We sell the Root goods here at Root's factory prices, which means freight paid to Des Moines, Ia.

Immense stock and every variety of the best up to date goods now on hand packed for prompt shipment

Satisfaction is guaranteed on every order sent us. Thousands have been pleased with their goods from us. We satisfy you.

Write for estimates sending list of what you will need. We will save you money.

Send to-day for our 16th annual catalog. Address.

**O. NYSEWANDER..**  
710 & 712 W. Grand Ave.  
**DES MOINES, IOWA.**

## Why Not



Place your order now? We will make you special prices for early delivery. We are headquarters in Central California for Root's Cowan Extractors, Sections, Weed Foundation, Smokers, etc., as well as a full line of local-made supplies. We can give you prompt service. We solicit your patronage.

0000

**Madary's Planingmill**  
Fresno, California.